Instruction Manual

Model 4682
IF/Baseband Test Oscillator

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MODEL 4682
IF/BASEBAND TEST OSCILLATOR

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Third Edition, Revised

August, 1984

SCIENTIFIC-ATLANTA, INC.

163288

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CHAPTER 1
GENERAL INFORMATION

1.1 GENERAL

1.1.1 This manual contains information necessary for the proper operation, maintenance and adjustments for the Scientific-Atlanta Model 4682 IF/Baseband Test Oscillator. A replacement parts lists, component location illustrations and schematic diagrams are also included. When changes are made to any of the above, the changes will be identified and described in a notice following the title page.

1.2 PURPOSE OF EQUIPMENT

1.2.1 The Model 4682 IF/Baseband Test Oscillator supplies calibrated test signals necessary for performing IF and modulation sensitivity tests on a microwave radio system. The Model 4682 IF/Baseband Test Oscillator is used in conjunction with the Model 4680 Radio Performance Analyzer to perform a carrier-to-interference ratio measurement, to supply an IF carrier signal at repeater sites to perform tests identifying thermal or spurious tone interference, and to supply the proper signal for adjusting modulator deviation. Output signals from the Model 4682 IF/Baseband Test Oscillator are preset at the fixed levels required for radio system tests which provides for simplicity of operation.

1.3 GENERAL DESCRIPTION

1.3.1 There are four specific models which vary according to IF frequency and baseband provisions. Models 4682-1(70) and 4682-2(70) provide 70.0 and 70.3 MHz IF signals at 0 and +5 dBm output levels. In addition, the 4682-2(70) provides a 1.0494 MHz, -16 dBm signal for modulator deviation adjustment. Models 4682-1(74) and 4682-2(74) provide 74.12965 and 74.42965 MHz IF signals at 0 and +1 dBm output levels. The 4682-2(74) also has the baseband capabilities similar to Model 4682-2(70). A typical Model 4682 IF/Baseband Test Oscillator is shown in Figure 1-1.

Figure 1-1. A Typical Model 4682 IF/Baseband Test Oscillator

1.4 TECHNICAL CHARACTERISTICS

1.4.1 The technical characteristics applicable to the four different Model 4682 IF/Baseband Test Oscillators are listed in Table 1-1. Both operating and maintenance personnel should review these specifications as a reminder of the limits and operational characteristics that may be expected from a specific Model 4682 IF/Baseband Test Oscillator.

TECHNICAL SPECIFICATIONS

IF BASEBAND TEST OSCILLATOR, MODEL 4682	-1 (70)	-2 (70)	-1 (74)	-2 (74)
General				
Input Power	115/230V ac (±10%), 50/60 Hz			
Size (Inches)	6.6W X 6.6D X 2.5H			
(Centimeters)	16.76W X 16.76D X 6.35H			
Weight	2 Pounds (0.91 Kg)			
Operational Environment	0°C to +40°C			
Fuse Complement	0.250A, 3 AG Slo Blo			
Wattage	5 watts			
IF Specifications				
Output Frequencies (MHz)	70.0	70.0	74.12965	74.12965
(switch selectable)	70.3	70.3	74.42965	74.42965
Frequency Accuracy (kHz)	±2	±2	±2	±2
Frequency Levels (dBm)	0	0	0	0
(switch selectable)	+5	+5	+1	+1
Level Accuracy (dB)	±0.15	±0.15	±0.15	±0.15
Output Connector	Single miniature WECo type			
Output Impedance	75-ohms unbalanced			
Output Return Loss	≥ 26 dB			
Harmonics below Carrier	≥ 40 dB			
Baseband Specifications				
Output Frequency (MHz)	Not Applicable	1.0494	Not Applicable	1.0494
Frequency Accuracy (Hz)		±100		±100
Frequency Level (dBm)		-16		-16
Level Accuracy (dB)		±0.05*		±0.05*
Output Connector		Dual miniature WECo type		Dual miniature WECo type
Output Impedance		124-ohms balanced		124-ohms balanced
Output Return Loss	Not Applicable	≥30 dB	Not Applicable	≥30 dB

*Specified at 15° to 30°C

CHAPTER 2
INSTALLATION

2.1 GENERAL

2.1.1 This chapter contains information necessary to install the Model 4682 IF/Baseband Test Oscillator and prepare it for initial operation. Operating instructions are provided in CHAPTER 3 - OPERATION.

2.2 UNPACKING AND INSPECTION

2.2.1 Carefully unpack the shipping cartons observing all instructions that may be printed on the carton. Separate the packing material from the main units and any packages of loose items, (i.e., hardware, cables, connectors, etc.). Temporarily set the shipping cartons and packing material aside in a safe place and inspect the units and associated items, if any, for shipping damage. If damage is evident, contact both the carrier and the nearest Scientific-Atlanta sales representative immediately. Save the packing materials and shipping papers for inspection by the carrier's representative. Do not return a unit to Scientific-Atlanta without receiving specific return shipment instructions.

2.2.2 Save the shipping cartons and packing material until satisfactory operation of the Model 4682 IF/Baseband Test Oscillator is determined. The shipping cartons and packing material may then be used for storage or protection during further transport of the equipment if necessary.

2.3 INSTALLATION

2.3.1 Testing Arrangement: Only the connections illustrated in CHAPTER 3 - OPERATION are required for the installation and use of the Model 4682 IF/Baseband Test Oscillator. The Model 4682 IF/Baseband Test Oscillator is designed as an independent frequency source to operate with the Model 4680 Radio Performance Analyzer and no special or general installation instructions are required.

CHAPTER 3
OPERATION

3.1 GENERAL

3.1.1 This chapter contains information about operating the Model 4682 IF/Baseband Test Oscillator under normal conditions. Figure 3-1 provides identification of the front panel controls which can be used for association when performing verification and test arrangement interconnections for the first few times.

3.2 PERFORMANCE VERIFICATION

3.2.1 The Model 4670 IF/Baseband Analyzer can be easily used to verify the performance of the Model 4682 IF/Baseband Test Oscillator. In certain instances the Model 4682 IF/Baseband Test Oscillator is aligned to a greater accuracy than the Model 4670 IF/Baseband Analyzer is capable of measuring. The acceptable limits in this section reflect the measurement accuracy of the associated Model 4670 IF/Baseband Analyzer.

3.2.2 IF PERFORMANCE VERIFICATION

1. Apply ac power to both the Model 4682 IF/Baseband Test Oscillator and the Model 4670 IF/Baseband Analyzer.
2. Connect the IF OUTPUT 75 ohm from the Model 4682 IF/Baseband Test Oscillator to the IF/BB -75 Ω IN jack on the Model 4670 IF/Baseband Analyzer.
3. Operate the Model 4670 IF/Baseband Analyzer front panel controls as follows:

INPUT:	+5 dBm
REFERENCE:	0 dB
IF ±25 MHz:	depress switch and release
MODE-MANUAL:	depress switch and release

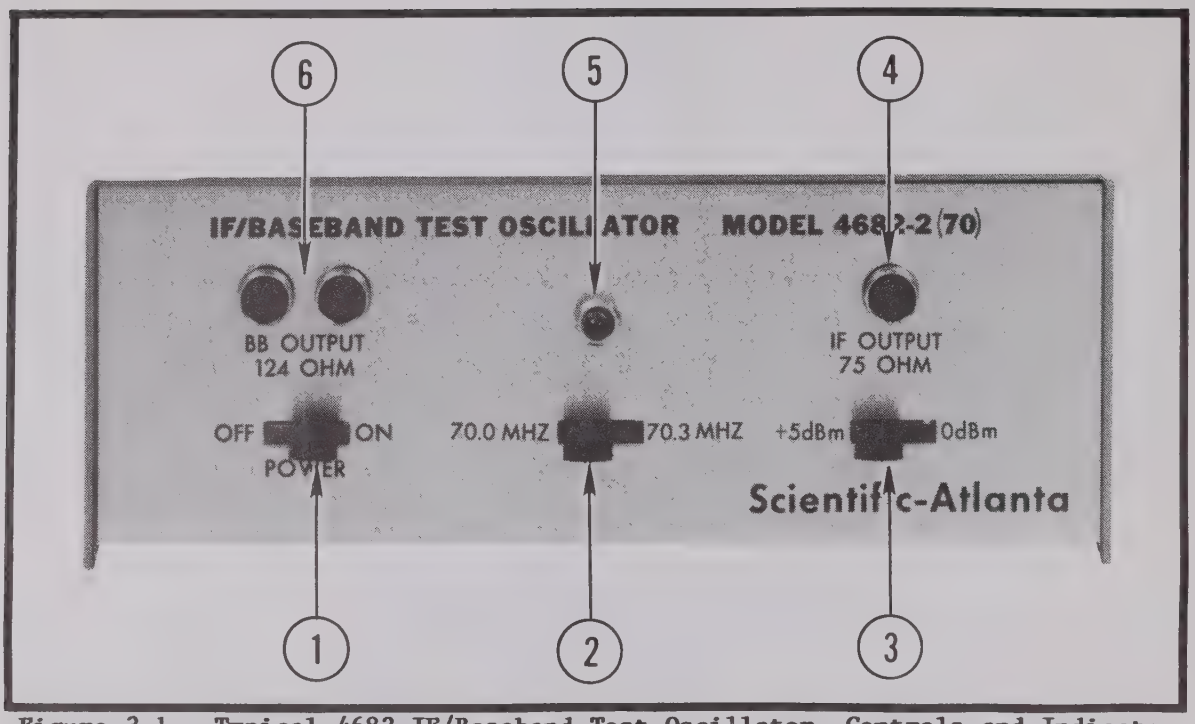


Figure 3-1. Typical 4682 IF/Baseband Test Oscillator, Controls and Indicator

1.	POWER OFF-ON	Switches ac power.
2.	70.0 MHz-70.3 MHz	Selects either 70.0 MHz or 70.3 MHz IF output frequency (74.12965 MHz and 74.42965 MHz on the (74) model).
3.	+5 dBm - 0 dBm	Selects IF output level of either +5 dBm or 0 dBm (+1 and 0 dBm on the (74) model).
4.	IF OUTPUT 75 OHM	Miniature WECO compatible IF output connector. The impedance is 75 Ω unbalanced.
5.	Power On Indicator	Indicates ac power is applied.
	4682-2(70) and 4682-2(74) models only:	
6.	BB OUTPUT 124 OHM	Miniature WECO compatible BB output connectors. The impedance is 124 Ω balanced.

4. Position the Model 4682 IF/Baseband Test Oscillator controls as follows:

70.0 MHz - 70.3 MHz switch:	70.0 MHz
+5 dBm - 0 dBm switch:	+5 dBm

(74) models:

74.13 MHz - 74.43 MHz switch:	74.13 MHz
+1 dBm - 0 dBm switch:	+1 dBm

5. Tune the Model 4670 IF/Baseband Analyzer for maximum level indication on the LEVEL-dBm digital display. The FREQUENCY-kHz digital display should read 70.000 (±0.015) MHz (74.12965 ±0.015 MHz for (74) models) and the LEVEL-dBm digital display should read +5 dBm (±0.5 dB) or +1 dBm (±0.5 dB) for (74) models.
6. Place the 70.0 MHz - 70.3 MHz switch in the 70.3 MHz position (74.43 MHz position on the (74) models). Again, tune the Model 4670 IF/Baseband Analyzer for maximum power indication. The FREQUENCY-kHz digital display and the LEVEL-dBm digital display should read +5 dBm (±0.5 dB) or +1 dBm (±0.5 dB) for (74) models.

3.2.3 BB PERFORMANCE VERIFICATION (Models 4682-2(70) and 4682-2(74) IF/Baseband Test Oscillators only)

1. Apply ac power to both the Model 4682 IF/Baseband Test Oscillator and the Model 4670 IF/Baseband Analyzer.
2. Connect between the BB OUTPUT - 124 ohm of the Model 4682 IF/Baseband Test Oscillator to the 124 Ω IN jacks on the Model 4670. Insert a 75 ohm looping plug to connect the 75 Ω OUT jack and the IF/BB 75 Ω IN jack WITHOUT de-emphasis.
3. Operate the Model 4670 IF/Baseband Analyzer front panel controls as follwos:

INPUT:	-16 dBm
REFERENCE:	0 dB
NPR:	depress switch and release
MODE-MANUAL:	depress switch and release

4. Tune the Model 4670 IF/Baseband Analyzer for maximum level indication on the LEVEL-dBm digital display. The FREQUENCY-kHz digital display should read 1049 (±1) kHz and the LEVEL-dBm digital display should read -16 dBm (±0.2) dB.

3.3 CARRIER-TO-INTERFERENCE (C/I) RATIO TESTING

3.3.1 Co-channel interference results when the receiving antenna picks up another radio site transmitting on the same frequency. To properly measure the interferring signal, the frequency of the radio under test must be shifted enough to allow observation of the channel center frequency. The Model 4682 IF/Baseband Test Oscillator may be used to shift the frequency of the radio under test. For the following procedure, a sheet of IF TEST FORM chart paper (also identified as CHART NO. 214 in the lower left corner) should be installed on the Model 4673 X-Y Recorder.

1. Connect the test equipment as shown in Figure 3-2.
2. Operate the front panel controls as listed:

   Model 4670 IF/BB Analyzer

INPUT:	As required to match the output of the IF preamplifier, typically +10 dB.
70 ±5 MHz:	Depress switch and release
MODE-MANUAL:	Depress switch and release

   Model 4682 IF/Baseband Test Oscillator (Numbers in parentheses refer to the 74 MHz version only).

LEVEL:	As required to match the input of the radio transmitter.
FREQ MHz:	+0.3 MHz above channel center frequency or 70.3 MHz (74.3 MHz)

3. Adjust the coarse and FINE TUNING controls on the Model 4670 IF/Baseband Analyzer as necessary to obtain a signal peak on the test frequency, 70.3 MHz (74.3 MHz).

Use the analog meter for adjusting for the peak. (Since the measurement filter bandwidth is 30 kHz, it will be necessary to recheck the carrier peak during calibration.)

4. Adjust the REFERENCE attenuator for a 0 dB reading on the +3/-70 dB (bottom) scale on the analog meter.
5. Adjust the X-ZERO and Y-ZERO controls on the Model 4673 X-Y Recorder to place the pen over the correct test frequency, 70.3 MHz (74.3 MHz), and 0 dB crosshatch. Again verify the test frequency peak.
6. Depress the MODE-AUTO momentary switch and release. Allow the recorder pen to settle at the left hand margin. Depress the MODE RECORD momentary switch and release. Observe that the Model 4673 X-Y Recorder automatically scans and plots the C/I test showing the amplitude of an interferring signal, if present, relative to the carrier test frequency.

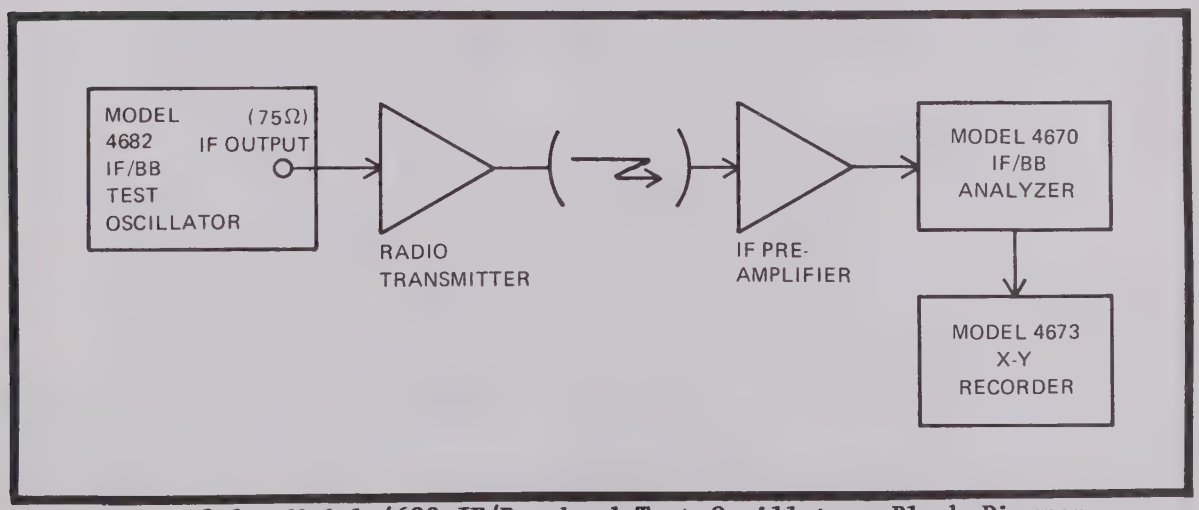


Figure 3-2. Model 4682 IF/Baseband Test Oscillator, Block Diagram Arrangement to Perform Carrier-to-Interference (C/I) Ratio Testing

3.4 MODULATION DEVIATION ADJUSTMENT (Bessel-Null)

3.4.1 The Model 4670 IF/Baseband Analyzer, along with the Model 4682-2 IF/Baseband Test Oscillator, may be used to accurately set an FM transmitter's frequency deviation according to the following procedure:

1. Connect the test equipment as shown in Figure 3-3.
2. Adjust the FM transmitter's frequency deviation to a minimum.
3. Position front panel controls as listed:

   Model 4682 IF/Baseband Test Oscillator

   The baseband output is preset and requires no setting of the front panel controls.

   Model 4670 IF/Baseband Analyzer

INPUT:	As required to match the output of the FM transmitter. Additional external attenuators may be necessary if an overload condition is experienced.
70 ±5 MHz:	Depress switch and release
MODE-MANUAL:	Depress switch and release

4. Adjust the coarse and FINE TUNING controls to obtain a signal peak on the carrier frequency. Use the analog meter when adjusting for the peak.
5. Adjust the REFERENCE attenuator for a 0 dB reading on the +3/-70 dB (bottom) scale on the analog meter.
6. Slowly increase the FM transmitter's frequency deviation control until the first null (or dip) on the analog meter is observed. Carefully adjust the deviation control until the null is at its lowest value. The modulator sensitivity will now be set at 4.0 MHz PEAK/-12 dBm.

7. If a permanent copy of the FM transmitter's output spectrum is desired, place a sheet of IF TEST FORM chart paper (also identified as CHART NO. 214 in the lower left corner) on the platen of the Model 4673 X-Y Recorder.
8. Adjust the X-ZERO and Y-ZERO controls on the Model 4673 X-Y Recorder to place the pen over the correct carrier frequency grid line (X-ZERO) and over the grid line which corresponds to the LEVEL-dBm digital display (Y-ZERO).
9. Depress MODE-AUTO momentary switch on the Model 4670 IF/Baseband Analyzer and release. Allow sufficient time for the recording pen to stabilize at the left hand margin of the chart paper.
10. Depress MODE-RECORD momentary switch and release. Observe that the Model 4673 X-Y Recorder automatically scans and plots the FM Transmitter's output spectrum, verifying the Bessel-null modulator sensitivity adjustment.

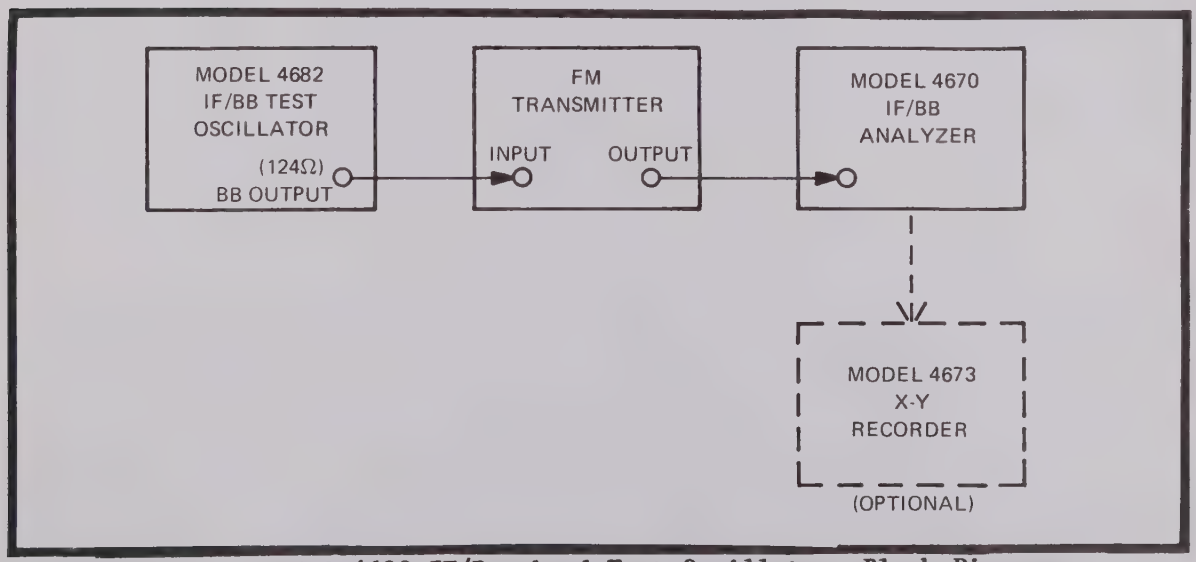


Figure 3-3. Model 4682 IF/Baseband Test Oscillator, Block Diagram Arrangement to Perform Modulation Sensitivity Adjustment (Bessel-null)

CHAPTER 4
THEORY OF OPERATION

4.1 GENERAL

4.1.1 The theory of operation for the Model 4682 IF/Baseband Test Oscillator is presented in separate sections describing the individual frequency generating capabilities followed by a description of the power supply. All descriptions are related to associated schematic diagrams shown in Chapter 7.

4.2 IF FREQUENCY OSCILLATOR CIRCUIT
(See Figure 7-6)

4.2.1 The IF oscillator is a Colpitts type with the crystals Y1 and Y2 in series with the emitter feedback. Inductors L5 and L6 tune the output frequencies. Inductor L2 and capacitor C11 form a low pass filter to suppress undesired harmonics. L2 is adjusted for maximum oscillator output.

4.2.2 Transistors Q2 and Q3 form a buffer amplifier whose gain is determined by the ratio of R7 to R4. The output of the amplifier at the emitter of Q3 goes both to the leveler circuit and to a low pass filter composed of C19, C20, and L10. R13, R14, and R15 form a 5 dB π pad (1 dB pad on the (74) models) for attenuating the IF output signal. R12 is present only on the (74) models to reduce the +5 dBm signal from the buffer amplifier to +1 dBm.

4.2.3 Diodes CR2 and CR3 and integrator U3 form a temperature compensated leveling circuit which maintains the output of the oscillator at a constant value. R18 allows adjustment of the oscillator output level.

4.3 BASEBAND FREQUENCY OSCILLATOR CIRCUIT
(See Figure 7-7)
(Models 4682-2(70) and4682-2(74) only)

4.3.1 The baseband oscillator consists of Q6 and a 180^{o} feedback network composed of L12, L14, C35, C37, C38, C39, and Y1. The output of the oscillator is fed to a buffer amplifier consisting of Q4 and Q5. Gain is determined by the ratio of the value R26 to the reactance of L12. The output of the amplifier is applied to a 75 Ω to 124 Ω transformer to provide a balanced 124 Ω output.

4.3.2 The buffer amplifier output is also applied to a temperature compensated transistor pair, U4, which is connected as a pair of diodes. All thermal changes affect both diodes equally, thus cancelling any electrical changes. Amplifier U5, which is configured as an integrator, uses the outputs from two diodes to control the bias on Q6, and hence, the output of the oscillator.

4.4 POWER SUPPLY CIRCUIT
(See Figure 7-5)

4.4.1 The power supply consists of basically two full wave center tapped supplies of opposite polarity. Voltage regulation is accomplished by three-terminal voltage regulator integrated circuits. The voltage regulators employ built-in thermal shutdown protection and short circuit protection. The dual primary transformer, T1, allows both 115 and 230V operation.

CHAPTER 5
MAINTENANCE

5.1 GENERAL

5.1.1 Due to the reliability and nature of the equipment, frequency periodic maintenance of the Model 4682 IF/Baseband Test Oscillator is not necessary. Should a component replacement be necessary, the following procedure may be used to align the unit.

5.2 RECOMMENDED TEST EQUIPMENT

(Equivalent equipment may be used):

1. Frequency Counter (HP 5382A)
2. Digital Voltmeter (HP 3465A)
3. Signal Generator (W & G AT-610)
4. Selective Level Meter (W & G AT-611)
5. Milliwatt Power Test Set (W & G EPM-1)
6. 124 Ω Probe for instrument #5 (W & G TKSA, TKSA-124, and TKSE-124)
7. 1 dB and 5 dB, 75 Ω pads

(NOTE: HP is Hewlett-Packard and W & G is Wandel & Golterman)

5.3 ALIGNMENT PROCEDURE

1. Check that the ac power switch, S1, is in the OFF position.

WARNING

ONCE THE AC CONNECTOR ON THE PRINTED CIRCUIT BOARD, J1, IS CONNECTED TO THE INTERLOCK CABLE, 110V AC WILL BE PRESENT NEAR THE AC POWER SWITCH, S1, THE POWER TRANSFORMER, T1, AND ALONG THE ENTIRE LEFT SIDE OF THE PRINTED CIRCUIT BOARD AS VIEWED FROM THE POWER SWITCH END. EXERCISE EXTREME CAUTION IN HANDLING THIS PRINTED CIRCUIT BOARD WHEN AC POWER IS CONNECTED.

2. Connect ac power cord to the rear panel connector. Position the ac POWER switch to ON.
3. Measure the voltage at TP1. It should be +12.0 (±0.5)V dc.
4. Measure the voltage at TP2. It should be -12.0 (±0.5)V dc.
5. Connect the frequency counter to IF OUTPUT 75 ohm connector. Place the frequency select switch, S2, in the left (lower) position and adjust L5 for the lower frequency. Similarly, place S2 in the right (higher) position and adjust L6 for the higher frequency. The lower and higher frequencies are defined as follows:

MODEL NUMBER	LOWER FREQUENCY (L5)	HIGHER FREQUENCY (L6)
4682-1(70)	70.000±0.002 MHz	70.300±0.002 MHz
4682-2(70)	70.000±0.002 MHz	70.300±0.002 MHz
4682-1(74)	74.12965±0.002 MHz	74.42965±0.002 MHz
4682-2(74)	74.12965±0.002 MHz	74.42965±0.002 MHz

6. Connect a voltmeter to TP3. Adjust L2 for a maximum positive voltage at TP3.
7. Connect the W & G EPM-1 to IF OUTPUT JACK. Place the output power switch, S3, in the right (0 dBm) position. Adjust R18 for a reading of 0 dBm ±0.15 dB. For (70) models, connect a 5 dB pad between the unit under test and the W & G EPM-1 and place S3 in the left (+5 dBm) position. Again, the reading should be 0 dBm ±0.15 dB. For (74) models, use a 1 dB pad instead of the 5 dB pad. The reading should also be 0 dBm ±0.15 dB.

The following steps apply only to those units with the baseband oscillator (Models 4682-2(70) and 4682-2(74).

8. Connect the frequency counter to the BB OUTPUT 124 ohm connector. Adjust C37 for an output frequency of 1.0494 MHz ±100 Hz.
9. Connect a voltmeter to TP4. Adjust L14 for a maximum positive voltage at TP4.
10. Connect the 124 Ω adapter (W & G TKSA and TKSA-124) of the EPM-1. Carefully adjust the AT-610 for a 0 dBm output. Connect the 124 Ω output of the W & G AT-610 to the 124 Ω input of the W & G AT-611 and adjust the AT-611 to read 0 dBm on the ±0.5 scale. Adjust the attenuator on the AT-611 to -16 dB and connect the BB OUTPUT 124 Ω of the Model 4682 IF/Baseband Test Oscillator to the 124 Ω input of the AT-611. Adjust R28 for a 0 (±0.05) dB reading on AT-611.

5.4 REGIONAL SERVICE CENTERS

5.4.1 Regional Service Centers capable of performing periodic maintenance and providing assistance associated with the Model 4682 IF/Baseband Test Oscillator and other Scientific-Atlanta equipment are listed below. Service Assistance for areas not listed can be provided through the Scientific-Atlanta Field Service Center, 4025 Pleasantdale Road, Atlanta, Georgia 30340; TEL: 404-441-2184; TWX: 810-766-4912; TELEX: 0542898.

NORTH AMERICAN REGIONAL SERVICE CENTERS

Northeastern Regional Office
149 Middlesex Turnpike
Burlington, Massachusetts 01803
Tel: 617-272-1256

Washington D.C. Regional Office
Washington Business Park
5100-J Philadelphia Way
Tanham, Maryland 20706
Tel: 301-577-4830

Mid Atlantic Regional Office
2100 Route 208
Fair Lawn, New Jersey 07410
Tel: 201-791-8777

Southeastern Regional Office
4025 Pleasantdale Road
Atlanta, Georgia 30340
Tel: 404-449-2021

Florida Regional Office
P.O. Box 2143
841 West Emmett St.
Kissimmee, Florida 32741
Tel: 305-846-0055

Midwest Regional Office
Fidelity Bldg., Suite 306
11550 N. Meridian
Carmel, Indiana 46032
Tel: 317-846-7142

Chicago Service Center
621 East Butterfield Rd., Suite 219
Lombard, Illinois 60148
Tel: 312-963-6375

Southwestern Regional Office
1237 Executive Drive, East
Richardson, Texas 75081
Tel: 214-238-1116

Denver Service Center
103 Inverness Dr. East
Inglewood, Colorado 80112
Tel: 303-790-0585

So. California Regional Office
P.O. Box 2668
10039 Pioneer Boulevard
Santa Fe Springs, California 90670
Tel: 213-949-9411

No. California Regional Office
3375 Scott Boulevard, Suite 304
Santa Clara, California 95051
Tel: 408-496-1040

INTERNATIONAL SERVICE CENTERS

CANADA
Scientific-Atlanta, Ltd.
1640 Bonhill Road
Unit 6
Mississauga, Ontario L5T1C8
Tel: 416-677-6555
Telex: 06983600

GERMANY
Scientific-Atlanta GmbH
Albert Schweitzerstrasse 66/3
D8000 Munich 83, Germany
Tel: 49.8967.1044
Telex: 5212264

ENGLAND
Scientific-Atlanta, Ltd.
Horton Manor
Stanwell Road, Horton
Slough SL3 9PA, England
Tel: 44.2812-3211
Telex: 849406

ITALY
Scientific-Atlanta, S.p.A.
Via Benedetto Croce 19
00142 Rome, Italy
Tel: 39.06.5420244
Telex: 621441

FRANCE
Scientific-Atlanta S.A.
4 Avenue Gabriel Peri
78360 Montesson
France
Tel: 33.1.9769191
Telex: 696385

CHAPTER 6
PARTS LISTS

6.1 GENERAL

6.1.1 A separate parts list for each standard Model 4682 IF/Baseband Test Oscillator is included in this chapter. Special modifications, if any, are described at the front of this manual.

6.2 EXPLANATION OF COLUMN HEADINGS

6.2.1 REF. DESIG. This identifies the assigned reference designation applicable to the equipment and arranged by individual components.

6.2.2 COMP. DESIG. This identifies the components of the unit in alpha-numerical order.

6.2.3 SCIENTIFIC-ATLANTA (S-A) PART NO. A five or six digit number assigned by the manufacturer to the specific part for identification and correct replacement ordering information.

6.2.4 DESCRIPTION. A brief electrical and/or mechanical description. Abbreviations used in this column are explained at the end of the chapter.

6.2.5 FSCM. The proper Federal Supply Code for manufacturers is entered in this column. The code numbers are from the Federal Supply Code for Manufacturers Cataloging Handbooks H4-1 (Name to Code) and H4-2 (Code to Name) in effect as of the publication date of this manual. Alphabetical codes have been assigned to suppliers not assigned in the H4 handbooks and these identifying codes are cross-referenced (Code to Name) at the end of this section.

6.2.6 MFR. PART NO. The number assigned to a part by an outside supplying manufacturer is listed in this column.

6.3 ORDERING PARTS

6.3.1 When ordering parts from Scientific-Atlanta, always include the Scientific-Atlanta part number, the part description, the unit name, the unit serial number, the subassembly name, the part manufacturer (FSCM) and the manufacturers part number.

6.4 PARTS SUBSTITUTION

6.4.1 Common components may differ from those identified in the parts list. This difference is due to the substitution of a more current part during assembly. When this occurs, the replacement may be either a part identical to the type removed or a part meeting the description given in the parts list.

INDEX

REF DESIG	S-A PART NO.	TITLE	PAGE
	152760	Model 4682-1(70) IF/Baseband Oscillator Unit	6-4
A01	152767	IF/Baseband Test Oscillator PWB Assembly	6-5
	152762	Model 4682-2(70) IF/Baseband Test Oscillator Unit	6-7
A01	152768	IF/Baseband Test Oscillator PWB Assembly	6-8
	152761	Model 4682-1(74) IF/Baseband Test Oscillator Unit	6-10
A01	155910	IF/Baseband Test Oscillator PWB Assembly	6-11
	152763	Model 4682-2(74) IF/Baseband Test Oscillator Unit	6-13
A01	155911	IF/Baseband Test Oscillator PWB Assembly	6-14
		FSCM-Manufacturer Cross Reference	6-16

MODEL 4682-1(70) IF/BASEBAND OSCILLATOR UNIT - 152760

	REF DESIG	PART NO.	DESCRIPTION	FSCM CODE	VENDOR PART NUMBER
	A 001	0152767	PWB ASSY, IF/BB TEST OSC, MDL 4682-1-70	10110	152767
	F 001	0071215	FUSE 1/4 AMP SLO BLO	75915	3AG 313.250
(1)	FL001	0313177	PWB ASSY, 85MHz LOW PASS FILTER	10110	313177
	W 001	0152777	CABLE ASSY,POWER,MODEL 4682		
	W 002	0152776	CABLE ASSY,IF OUTPUT,MODEL 4682		
	W 003	0155093	INDICATOR ASSY,POWER,MODEL 4682		

(1) APPLIES TO SERIAL NUMBER 117 AND ABOVE (APPROXIMATELY).

IF/BASEBAND TEST OSCILLATOR PWB ASSEMBLY - 152767

REF DESIG PREFIX: A01

REF DESIG	PART NO.	DESCRIPTION	FSCM CODE	VENDOR PART NUMBER
C 001	0076732	CAPACITR 500 MF 25V	80183	39D507G025HE4
C 002	0076732	CAPACITR 500 MF 25V	80183	39D507G025HE4
C 003	0035654	CAPACITR 10 MF 25V SOLID TANT POL 10%	05397	T362B106K025AS
C 004	0035654	CAPACITR 10 MF 25V SOLID TANT POL 10%	05397	T362B106K025AS
C 005	0080139	CAPACITR .1 MF 50V CER MONO -20%+80%	72982	8131-050-651-104Z
C 006	0080139	CAPACITR .1 MF 50V CER MONO -20%+80%	72982	8131-050-651-104Z
C 007	0081210	CAPACITR .01 MF 50V CER MONO X7R 10%	72982	8121-050-X7R-103K
C 008	0081210	CAPACITR .01 MF 50V CER MONO X7R 10%	72982	8121-050-X7R-103K
C 009	0035761	CAPACITR 5.0 PF 500V CER DISC COH +-.25P	72982	831-COHO-509C
C 010	0035761	CAPACITR 5.0 PF 500V CER DISC COH +-.25P	72982	831-COHO-509C
C 011	0070522	CAPACITR 150 PF 500V SILVER MICA 5%	14655	CD15FD151J03
C 012	0081210	CAPACITR .01 MF 50V CER MONO X7R 10%	72982	8121-050-X7R-103K
C 013	0073495	CAPACITR 39 PF 500V SILVER MICA 5%	14655	CD15ED390J03
C 014	0073497	CAPACITR 180 PF 500V SILVER MICA 5%	14655	CD15FD181JC3
C 015	0082007	CAPACITR 4.3 PF 100V CER DISC COH +-.25P	72982	835-024-COHO-439C
C 016	0081210	CAPACITR .01 MF 50V CER MONO X7R 10%	72982	8121-050-X7R-103K
C 017	0081210	CAPACITR .01 MF 50V CER MONO X7R 10%	72982	8121-050-X7R-103K
C 018	0081210	CAPACITR .01 MF 50V CER MONO X7R 10%	72982	8121-050-X7R-103K
(3) C 019	0073493	CAPACITR 18 PF 500V SILVER MICA 5%	14655	CD15CD180JC3
(3) C 020	0081820	CAPACITR 11 PF 100V SILVER MICA 5%	53021	D151C110JC3
C 021	0081210	CAPACITR .01 MF 50V CER MONO X7R 10%	72982	8121-050-X7R-103K
C 022	0080139	CAPACITR .1 MF 50V CER MONO -20%+80%	72982	8131-050-651-104Z
C 023	0080139	CAPACITR .1 MF 50V CER MONO -20%+80%	72982	8131-050-651-104Z
C 024	0080139	CAPACITR .1 MF 50V CER MONO -20%+80%	72982	8131-050-651-104Z
C 025	0081210	CAPACITR .01 MF 50V CER MONO X7R 10%	72982	8121-050-X7R-103K
C 026	0081210	CAPACITR .01 MF 50V CER MONO X7R 10%	72982	8121-050-X7R-103K
(1) CR001	0080895	RECTIFIER ASSY 100V 6A SOLDER LUGS	83003	VH148
CR002	0077022	DIODE 5082-2900 HOT CARRIER SWITCH	28480	5082-2900
CR003	0077022	DIODE 5082-2900 HOT CARRIER SWITCH	28480	5082-2900
E 001	0081718	CORE BEAD FERRITE 7D .138X.037X.150L GRN	78488	57-1413
E 002	0081718	CORE BEAD FERRITE 7D .138X.037X.150L GRN	78488	57-1413
J 001	0086008	CONN RECT 8-COND MALE PC MT W/CONTACTS		350212-2
J 002	0084940	CONN COAX SMB MALE PC MT 75 OHM	98291	51-151-0000
L 001	0081850	INDUCTOR 2.7 UH SUBMIN UNSHLD 5%	91637	IR-2
L 002	0152775	INDUCTOR, VARIABLE - 0.11 TO 0.21 UH		
L 003	0079168	INDUCTOR .68 UH SUBMIN UNSHLD 10%	91637	IR-2
L 004	0079168	INDUCTOR .68 UH SUBMIN UNSHLD 10%	91637	IR-2
L 005	0145353	INDUCTOR 13.5 T #24 6-32X3/8 INCH CARB J		PER CONT. DWG.
L 006	0145353	INDUCTOR 13.5 T #24 6-32X3/8 INCH CARB J		PER CONT. DWG.
L 007	0081850	INDUCTOR 2.7 UH SUBMIN UNSHLD 5%	91637	IR-2
L 008	0078046	INDUCTOR 3.3 UH SUBMIN UNSHLD 10%	91637	IR-2
L 009	0081850	INDUCTOR 2.7 UH SUBMIN UNSHLD 5%	91637	IR-2
(3) L 010	0086015	INDUCTOR .16 UH SUBMIN UNSHLD 5%		IR-2
(3) L 011	0077971	INDUCTOR 1.5 UH SUBMIN UNSHLD 10%	91637	IR-2
(2) PS001	0080895	RECTIFIER ASSY 100V 6A SOLDER LUGS	83003	VH148
Q 001	0035669	TRANSSTR 2N5179 SIL NPN	04713	2N5179
Q 002	0035669	TRANSSTR 2N5179 SIL NPN	04713	2N5179
Q 003	0085042	TRANSSTR MRF 517 NPN SIL	04713	MRF 517
R 001	0072019	RESISTOR 8.2K OHM 1/4W 10% COMP	01121	RCR07G822KS
R 002	0071993	RESISTOR 3.9K OHM 1/4W 10% COMP	01121	RCR07G392KS
R 003	0071951	RESISTOR 1.0K OHM 1/4W 10% COMP	01121	RCR07G102KS
R 004	0077524	RESISTOR 75 OHM 1/4W 5% COMP	01121	RCR07G750JS
R 005	0071931	RESISTOR 560 OHM 1/4W 10% COMP	01121	RCR07G561KS
R 006	0071862	RESISTOR 47 OHM 1/4W 10% COMP	01121	RCR07G470KS
R 007	0071901	RESISTOR 180 OHM 1/4W 10% COMP	01121	RCR07G181KS
R 008	0071897	RESISTOR 150 OHM 1/4W 10% COMP	01121	RCR07G151KS
R 009	0071894	RESISTOR 120 OHM 1/4W 10% COMP	01121	RCR07G121KS
R 010	0071918	RESISTOR 330 OHM 1/4W 10% COMP	01121	RCR07G331KS

(1) (2) (3) SEE PAGE 6-6

IF/BASEBAND TEST OSCILLATOR PWB ASSEMBLY - 152767

REF DESIG PREFIX: A01

REF DESIG	PART NO.	DESCRIPTION	FSCM CODE	VENDOR PART NUMBER
R 011	0083089	RESISTOR 75.0 OHM RN55C 1% MTL FLM		RN55C75R0F
R 012	0078600	NOT ASSIGNED		
R 013	0083096	RESISTOR 267 OHM RN55C 1% MTL FLM		RN55C267CF
R 014	0083085	RESISTOR 45.3 OHM RN55C 1% MTL FLM		RN55C45R3F
R 015	0083096	RESISTOR 267 OHM RN55C 1% MTL FLM		RN55C2670F
R 016	0071982	RESISTOR 2.7K OHM 1/4W 10% COMP	01121	RCR07G272KS
R 017	0071926	RESISTOR 470 OHM 1/4W 10% COMP	01121	RCR07G471KS
R 018	0084885	POT 10K OHM 1/2W CER 3/8 SQ VERT ADJ 20T	73138	66WR10K
R 019	0071926	RESISTOR 470 OHM 1/4W 10% COMP	01121	RCR07G471KS
R 020	0072034	RESISTOR 12K OHM 1/4W 10% COMP	01121	RCRC7G123KS
R 021	0083926	RESISTOR 23.7K OHM RN55C 1% MTL FLM		RN55C2372F
R 022	0083902	RESISTOR 3.01K OHM RN55C 1% MTL FLM		RN55C3C11F
R 023	0071941	RESISTOR 820 OHM 1/4W 10% COMP	01121	RCR07G821KS
(3)(2) R 040	0079863	RESISTOR 1.21K OHM RN55C 1% MTL FLM		RN55C1211F
S 001	0085965	SWITCH SLIDE DPDT RT ANGLE PC MT		GG387E .578 IN.BUTTON
S 002	0085965	SWITCH SLIDE DPDT RT ANGLE PC MT		GG387E .578 IN.BUTTON
S 003	0085965	SWITCH SLIDE DPDT RT ANGLE PC MT		GG387E .578 IN.BUTTON
T 001	0085963	XFMR 2SEC 15V 150MA EA 2PRI 115V 50/60HZ		U34-015-C-N
TP001	0082909	TERMINAL PRESS MT DISCONNECT .058 PIN	00779	60599-1
TP002	0082909	TERMINAL PRESS MT DISCONNECT .058 PIN	00779	60599-1
TP003	0082909	TERMINAL PRESS MT DISCONNECT .058 PIN	00779	60599-1
U 001	0085294	IC VLTG RGLTR POS 12V 0.5A TYP TO220	04713	MC7812CT
U 002	0085295	IC VLTG RGLTR NEG 12V 0.5A TYP TO220	04713	MC7912CT
U 003	0084890	IC OP AMP 8L-DIP 70C COMP 741C	04713	MC1741CP1
Y 001	0152770	XTAL,IF,70.0 MHZ,SPEC CONTROL DWG		
Y 002	0152771	XTAL,IF,70.3 MHZ,SPEC CONTROL DWG		

(1) APPLIES TO SERIAL NUMBER 111 AND BELOW (APPROXIMATELY).

(2) APPLIES TO SERIAL NUMBER 112 AND ABOVE (APPROXIMATELY).

(3) COMPONENTS ARE NOT USED ON SERIAL NUMBER 117 AND ABOVE (APPROXIMATELY).

MODEL 4682-2(70) IF/BASEBAND OSCILLATOR UNIT - 152762

REF DESIG	PART NO.	DESCRIPTION	FSCM CODE	VENDOR PART NUMBER
A 001	0152768	PWB ASSY, IF/BB TEST OSC, MDL 4682-2-70		
F 001	0071215	FUSE 1/4 AMP SLO BLO	75915	3AG 313.250
(1) FL001	0313177	PWB ASSY, 85MHz LOW PASS FILTER	10110	313177
W 001	0152777	CABLE ASSY, POWER, MODEL 4682		
W 002	0152776	CABLE ASSY, IF OUTPUT, MODEL 4682		
W 003	0155893	INDICATOR ASSY, POWER, MODEL 4682		

(1) APPLIES TO SERIAL NUMBER 578 AND ABOVE (APPROXIMATELY).

IF/BASEBAND TEST OSCILLATOR PWB ASSEMBLY - 152768

REF DESIG PREFIX: A01

REF DESIG	PART NO.		DESCRIPTION	FSCM CODE	VENDOR PART NUMBER
C 001	0076732		CAPACITR 500 MF 25V	80183	39D507G025HE4
C 002	0076732		CAPACITR 500 MF 25V	80183	39D507G025HE4
C 003	0035654		CAPACITR 10 MF 25V SOLID TANT POL 10%	05397	T362B106K025AS
C 004	0035654		CAPACITR 10 MF 25V SOLID TANT POL 10%	05397	T362B106K025AS
C 005	0080139		CAPACITR .1 MF 50V CER MONO -20%+80%	72982	8131-050-651-104Z
C 006	0080139		CAPACITR .1 MF 50V CER MONO -20%+80%	72982	8131-050-651-104Z
C 007	0081210		CAPACITR .01 MF 50V CER MONO X7R 10%	72982	8121-050-X7R-103K
C 008	0081210		CAPACITR .01 MF 50V CER MONO X7R 10%	72982	8121-050-X7R-103K
C 009	0035761		CAPACITR 5.0 PF 500V CER DISC COH +-.25P	72982	831-COHO-509C
C 010	0035761		CAPACITR 5.0 PF 500V CER DISC COH +-.25P	72982	831-COHO-509C
C 011	0070522		CAPACITR 150 PF 500V SILVER MICA 5%	14655	CD15FD151J03
C 012	0081210		CAPACITR .01 MF 50V CER MONO X7R 10%	72982	8121-050-X7R-103K
C 013	0073495		CAPACITR 39 PF 500V SILVER MICA 5%	14655	CD15ED390J03
C 014	0073497		CAPACITR 180 PF 500V SILVER MICA 5%	14655	CD15FD181J03
C 015	0082007		CAPACITR 4.3 PF 100V CER DISC COH +-.25P	72982	835-C24-COHO-439C
C 016	0081210		CAPACITR .01 MF 50V CER MONO X7R 10%	72982	8121-050-X7R-103K
C 017	0081210		CAPACITR .01 MF 50V CER MONO X7R 10%	72982	8121-050-X7R-103K
C 018	0081210		CAPACITR .01 MF 50V CER MONO X7R 10%	72982	8121-050-X7R-103K
(3) C 019	0073493		CAPACITR 18 PF 500V SILVER MICA 5%	14655	CD15CD180J03
(3) C 020	0081820		CAPACITR 11 PF 100V SILVER MICA 5%	53021	D151C110JC3
C 021	0081210		CAPACITR .01 MF 50V CER MONO X7R 10%	72982	8121-050-X7R-103K
C 022	0080139		CAPACITR .1 MF 50V CER MONO -20%+80%	72982	8131-050-651-104Z
C 023	0080139		CAPACITR .1 MF 50V CER MONO -20%+80%	72982	8131-050-651-104Z
C 024	0080139		CAPACITR .1 MF 50V CER MONO -20%+80%	72982	8131-050-651-104Z
C 025	0081210		CAPACITR .01 MF 50V CER MONO X7R 10%	72982	8121-050-X7R-103K
C 026	0081210		CAPACITR .01 MF 50V CER MONO X7R 10%	72982	8121-050-X7R-103K
C 027	0082434		CAPACITR 25 PF 100V CER DISC COG 5%	18796	835-C24-COGO-250J
C 028	0080139		CAPACITR .1 MF 50V CER MONO -20%+80%	72982	8131-050-651-104Z
C 029	0080139		CAPACITR .1 MF 50V CER MONO -20%+80%	72982	8131-050-651-104Z
C 030	0081210		CAPACITR .01 MF 50V CER MONO X7R 10%	72982	8121-050-X7R-103K
C 031	0081210		CAPACITR .01 MF 50V CER MONO X7R 10%	72982	8121-050-X7R-103K
C 032	0081210		CAPACITR .01 MF 50V CER MONO X7R 10%	72982	8121-050-X7R-103K
C 033	0080139		CAPACITR .1 MF 50V CER MONO -20%+80%	72982	8131-050-651-104Z
C 034	0070517		CAPACITR 100 PF 500V SILVER MICA 5%	14655	CD15FD101J03
C 035	0081995		CAPACITR .001 MF 100V CER MONO X7R 10%	72982	8121-100-X7R-102K
C 036	0080139		CAPACITR .1 MF 50V CER MONO -20%+80%	72982	8131-050-651-104Z
C 037	0078976		CAPACITR 15-60 PF MIN CER DISC PC MT	72982	538-011 F 15-60
C 038	0081931		CAPACITR 15 PF 500V CER DISC COG 5%	72982	831-CCGC-150J
C 039	0070534		CAPACITR 330 PF 500V SILVER MICA 5%	14655	CD15FD331JC3
C 040	0080139		CAPACITR .1 MF 50V CER MONO -20%+80%	72982	8131-050-651-104Z
C 041	0081210		CAPACITR .01 MF 50V CER MONO X7R 10%	72982	8121-050-X7R-103K
C 042	0070528		CAPACITR 200 PF 1KV CER DISC S3N 10%	71590	DD-201
(4) C 043	0070474		CAPACITR 10 PF 1 KV CER DISC S2L 10%	71590	DD-100
(1) C 044	0082004		CAPACITR 3.3PF 100V CER DISC COH +-.25P	72982	835-204-COHO-479C
(1) CR001	0080895		RECTIFIER ASSY 100V 6A SOLDER LUGS	83003	VH148
CR002	0077022		DIODE 5082-2900 HOT CARRIER SWITCH	28480	5082-2900
CR003	0077022		DIODE 5082-2900 HOT CARRIER SWITCH	28480	5082-2900
E 001	0081718		CORE BEAD FERRITE 7D .138X.037X.150L GRN	78488	57-1413
E 002	0081718		CORE BEAD FERRITE 7D .138X.037X.150L GRN	78488	57-1413
J 001	0086008		CONN RECT 8-COND MALE PC MT W/CONTACTS		350212-2
J 002	0084940		CONN COAX SMB MALE PC MT 75 OHM	98291	51-151-0000
L 001	0081850		INDUCTOR 2.7 UH SUBMIN UNSHLD 5%	91637	IR-2
L 002	0152775	A	INDUCTOR, VARIABLE - 0.11 TO 0.21 UH		
L 003	0079168		INDUCTOR .68 UH SUBMIN UNSHLD 10%	91637	IR-2
L 004	0079168		INDUCTOR .68 UH SUBMIN UNSHLD 10%	91637	IR-2
L 005	0145353		INDUCTOR 13.5 T #24 6-32X3/8 INCH CARR J		PER CONT. DWG.
L 006	0145353		INDUCTOR 13.5 T #24 6-32X3/8 INCH CARR J		PER CONT. DWG.
L 007	0081850		INDUCTOR 2.7 UH SUBMIN UNSHLD 5%	91637	IR-2
L 008	0078046		INDUCTOR 3.3 UH SUBMIN UNSHLD 10%	91637	IR-2
L 009	0081850		INDUCTOR 2.7 UH SUBMIN UNSHLD 5%	91637	IR-2
(3) L 010	0086015		INDUCTOR .16 UH SUBMIN UNSHLD 5%		IR-2
(3) L 011	0077971		INDUCTOR 1.5 UH SUBMIN UNSHLD 10%	91637	IR-2
L 012	0079893		INDUCTOR 220 UH MIN SHLD ENCAP 5%	72259	WEE-220
L 013	0078716		INDUCTOR 100 UH SUBMIN UNSHLD 10%	91637	IR-2
L 014	0086007		INDUCTOR 60-120 UH PC MT		9055
L 015	0078716		INDUCTOR 100 UH SUBMIN UNSHLD 10%	91637	IR-2
(2) PS001	0080895		RECTIFIER ASSY 100V 6A SOLDER LUGS	83003	VH148

(1), (2), (3) and (4) SEE PAGE 6-9

IF/BASEBAND TEST OSCILLATOR PWB ASSEMBLY - 152768

REF DESIG PREFIX: A01

REF DESIG	PART NO.	DESCRIPTION	FSCM CODE	VENDOR PART NUMBER
Q 001	0035669	TRANSSTR 2N5179 SIL NPN	04713	2N5179
Q 002	0035669	TRANSSTR 2N5179 SIL NPN	04713	2N5179
Q 003	0085042	TRANSSTR MRF 517 NPN SIL	04713	MRF 517
Q 004	0077147	TRANSSTR 2N3947 NPN SIL	04713	2N3947
Q 005	0077147	TRANSSTR 2N3947 NPN SIL	04713	2N3947
Q 006	0085118	TRANSSTR 2N4416A FET N-CHNL JUNC	17896	2N4416A
R 001	0072019	RESISTOR 8.2K OHM 1/4W 10% COMP	01121	RCR07G822KS
R 002	0071993	RESISTOR 3.9K OHM 1/4W 10% COMP	01121	RCR07G392KS
R 003	0071951	RESISTOR 1.0K OHM 1/4W 10% COMP	01121	RCR07G102KS
R 004	0077524	RESISTOR 75 OHM 1/4W 5% COMP	01121	RCR07G750JS
R 005	0071931	RESISTOR 560 OHM 1/4W 10% COMP	01121	RCR07G561KS
R 006	0071862	RESISTOR 47 OHM 1/4W 10% COMP	01121	RCR07G470KS
R 007	0071901	RESISTOR 180 OHM 1/4W 10% COMP	01121	RCR07G181KS
R 008	0071857	RESISTOR 150 OHM 1/4W 10% COMP	01121	RCR07G151KS
R 009	0071894	RESISTOR 120 OHM 1/4W 10% COMP	01121	RCR07G121KS
R 010	0071918	RESISTOR 330 OHM 1/4W 10% COMP	01121	RCR07G331KS
R 011	0083089	RESISTOR 75.0 OHM RN55C 1% MTL FLM		RN55C75R0F
R 012	0078600	NOT ASSIGNED		
R 013	0083096	RESISTOR 267 OHM RN55C 1% MTL FLM		RN55C267CF
R 014	0083085	RESISTOR 45.3 OHM RN55C 1% MTL FLM		RN55C45R3F
R 015	0083096	RESISTOR 267 OHM RN55C 1% MTL FLM		RN55C267CF
R 016	0071982	RESISTOR 2.7K OHM 1/4W 10% COMP	01121	RCR07G272KS
R 017	0071926	RESISTOR 470 OHM 1/4W 10% COMP	01121	RCR07G471KS
R 018	0084885	POT 10K OHM 1/2W CER 3/8 SQ VERT ADJ 20T	73138	66WR10K
R 019	0071926	RESISTOR 470 OHM 1/4W 10% COMP	01121	RCR07G471KS
R 020	0072034	RESISTOR 12K OHM 1/4W 10% COMP	01121	RCR07G123KS
R 021	0083926	RESISTOR 23.7K OHM RN55C 1% MTL FLM		RN55C2372F
R 022	0083902	RESISTOR 3.01K OHM RN55C 1% MTL FLM		RN55C3011F
R 023	0071941	RESISTOR 820 OHM 1/4W 10% COMP	01121	RCR07G821KS
R 024	0083951	RESISTOR 154K OHM RN55C 1% MTL FLM		RN55C1543F
R 025	0083940	RESISTOR 59.0K OHM RN55C 1% MTL FLM		RN55C5902F
R 026	0071926	RESISTOR 470 OHM 1/4W 10% COMP	01121	RCR07G471KS
R 027	0082186	RESISTOR 750K OHM RN60C 1% MTL FLM		RN60C7503F
R 028	0085961	POT 1 M OHM 1/2W CER 3/8 SQ VERT ADJ 18T		66WR1MEG
R 029	0072019	RESISTOR 8.2K OHM 1/4W 10% COMP	01121	RCR07G822KS
R 030	0071973	RESISTOR 1.8K OHM 1/4W 10% COMP	01121	RCR07G182KS
R 031	0072026	RESISTOR 10K OHM 1/4W 10% COMP	01121	RCR07G103KS
R 032	0071951	RESISTOR 1.0K OHM 1/4W 10% COMP	01121	RCR07G102KS
R 033	0071977	RESISTOR 2.2K OHM 1/4W 10% COMP	01121	RCR07G222KS
R 034	0071982	RESISTOR 2.7K OHM 1/4W 10% COMP	01121	RCR07G272KS
R 035	0072034	RESISTOR 12K OHM 1/4W 10% COMP	01121	RCR07G123KS
R 036	0083089	RESISTOR 75.0 OHM RN55C 1% MTL FLM		RN55C75R0F
(3)(2) R 040	0079863	RESISTOR 1.21K OHM RN55C 1% MTL FLM		RN55C1211F
S 001	0085965	SWITCH SLIDE DPDT RT ANGLE PC MT		GG387E .578 IN.BUTTON
S 002	0085965	SWITCH SLIDE DPDT RT ANGLE PC MT		GG387E .578 IN.BUTTON
S 003	0085965	SWITCH SLIDE DPDT RT ANGLE PC MT		GG387E .578 IN.BUTTON
T 001	0085963	XFMR 2SEC 15V 150MA EA 2PRI 115V 50/60HZ		U34-015-C-N
T 002	0085964	XFMR MATCHING .06-12 MHZ 75 IN 124 OUT		3C4-10C01
TP001	0082909	TERMINAL PRESS MT DISCONNECT .058 PIN	00779	60599-1
TP002	0082909	TERMINAL PRESS MT DISCONNECT .058 PIN	00779	60599-1
TP003	0082909	TERMINAL PRESS MT DISCONNECT .058 PIN	00779	60599-1
TP004	0082909	TERMINAL PRESS MT DISCONNECT .058 PIN	00779	60599-1
U 001	0085294	IC VLTG RGLTR POS 12V 0.5A TYP TO220	04713	MC7812CT
U 002	0085295	IC VLTG RGLTR NEG 12V 0.5A TYP TO220	04713	MC7912CT
U 003	0084890	IC OP AMP 8L-DIP 70C COMP 741C	04713	MC1741CP1
U 004	0078219	IC TRANSSTR ARRAY 2-NPN TEMP COMPENSATED	13715	726 HC
U 005	0080911	IC OP AMP 8L-TO5 70C UNCOMP LO IN-CUR	12040	LM308AH
Y 001	0152770	XTAL,IF,70.0 MHZ,SPEC CONTROL DWG		
Y 002	0152771	XTAL,IF,70.3 MHZ,SPEC CONTROL DWG		
Y 003	0152769	XTAL, 1.05 MHZ, IF/BB TEST OSC. MDL 4682		

(1) APPLIES TO SERIAL NUMBER 111 AND BELOW (APPROXIMATELY).

(2) APPLIES TO SERIAL NUMBER 112 AND ABOVE (APPROXIMATELY).

(3) COMPONENTS ARE NOT USED ON SERIAL NUMBER 578 AND ABOVE (APPROXIMATELY).

(4) APPLIES TO SERIAL NUMBER 578 AND ABOVE (APPROXIMATELY).

MODEL 4682-1(74) IF/BASEBAND OSCILLATOR UNIT - 152761

REF DESIG	PART NO.	DESCRIPTION	FSCM CODE	VENDOR PART NUMBER
A 001	0155910	PWB ASSY, IF/BB TEST OSC, MDL 4682-1-74		
F 001	0071215	FUSE 1/4 AMP SLO BLO	75915	3AG 313.250
(1) FL001	0313177	PWB ASSY, 85MHz LOW PASS FILTER	10110	313177
W 001	0152777	CABLE ASSY, POWER, MODEL 4682		
W 002	0152776	CABLE ASSY, IF OUTPUT, MODEL 4682		
W 003	0155893	INDICATOR ASSY, POWER, MODEL 4682		

(1) APPLIES TO SERIAL NUMBER 117 AND ABOVE (APPROXIMATELY).

IF/BASEBAND TEST OSCILLATOR PWB ASSEMBLY - 155910

REF DESIG PREFIX: A01

REF DESIG	PART NO.	DESCRIPTION	FSCM CODE	VENDOR PART NUMBER
C C01	0076732	CAPACITR 500 MF 25V	80183	39D507G025HE4
C 002	0076732	CAPACITR 500 MF 25V	80183	39D507G025HE4
C 003	0035654	CAPACITR 10 MF 25V SOLID TANT POL 10%	05397	T3628106KC25AS
C 004	0035654	CAPACITR 10 MF 25V SOLID TANT POL 10%	05397	T3628106K025AS
C 005	0080139	CAPACITR .1 MF 50V CER MONO -20%+80%	72982	8131-050-651-104Z
C 006	0080139	CAPACITR .1 MF 50V CER MONO -20%+80%	72982	8131-050-651-104Z
C 007	0081210	CAPACITR .01 MF 50V CER MONO X7R 10%	72982	8121-050-X7R-103K
C 008	0081210	CAPACITR .01 MF 50V CER MONO X7R 10%	72982	8121-050-X7R-103K
C 009	0035761	CAPACITR 5.0 PF 500V CER DISC COH +-.25P	72982	831-CCH0-5C9C
C 010	0035761	CAPACITR 5.0 PF 500V CER DISC COH +-.25P	72982	831-CCH0-5C9C
C 011	0070522	CAPACITR 150 PF 500V SILVER MICA 5%	14655	CD15FD151J03
C 012	0081210	CAPACITR .01 MF 50V CER MONO X7R 10%	72982	8121-C5C-X7R-103K
C 013	0073495	CAPACITR 39 PF 500V SILVER MICA 5%	14655	CD15ED390JC3
C 014	0073497	CAPACITR 180 PF 500V SILVER MICA 5%	14655	CD15FD181J03
C 015	0082007	CAPACITR 4.3 PF 100V CER DISC COH +-.25P	72982	835-C24-CCHC-4J5C
C 016	0081210	CAPACITR .01 MF 50V CER MONO X7R 10%	72982	8121-050-X7R-103K
C 017	0081210	CAPACITR .01 MF 50V CER MONO X7R 10%	72982	8121-050-X7R-103K
C 018	0081210	CAPACITR .01 MF 50V CER MONO X7R 10%	72982	8121-C5C-X7R-103K
(3) C C19	0081829	CAPACITR 15 PF 500V SILVER MICA +-.5 PF	53021	D155C150D03
(3) C 020	0081820	CAPACITR 11 PF 100V SILVER MICA 5%	53021	D151C110J03
C 021	0081210	CAPACITR .01 MF 50V CER MONO X7R 10%	72982	8121-C50-X7R-103K
C 022	0080139	CAPACITR .1 MF 50V CER MONO -20%+80%	72982	8131-050-651-104Z
C 023	0080139	CAPACITR .1 MF 50V CER MONO -20%+80%	72982	8131-050-651-104Z
C 024	0080139	CAPACITR .1 MF 50V CER MONO -20%+80%	72982	8131-050-651-104Z
C 025	0081210	CAPACITR .01 MF 50V CER MONO X7R 10%	72982	8121-050-X7R-103K
C 026	0081210	CAPACITR .01 MF 50V CER MONO X7R 10%	72982	8121-050-X7R-103K
(1) CR001	0080895	RECTIFIER ASSY 100V 6A SOLDER LUGS	83003	VH148
CR002	0077022	DIODE 5082-2900 HOT CARRIER SWITCH	28480	5082-2900
CR003	0077022	DIODE 5082-2900 HOT CARRIER SWITCH	28480	5082-2900
E 001	0081718	CORE BEAD FERRITE 7D .138X.037X.150L GRN	78488	57-1413
E 002	0081718	CORE BEAD FERRITE 7D .138X.037X.150L GRN	78488	57-1413
J 001	0086008	CONN RECT 8-COND MALE PC MT W/CONTACTS		350212-2
J 002	0084940	CONN COAX SMB MALE PC MT 75 OHM	98291	51-151-0000
L 001	0081850	INDUCTOR 2.7 UH SUBMIN UNSHLD 5%	91637	IR-2
L 002	0152775	INDUCTOR, VARIABLE - 0.11 TO 0.21 UH		
L 003	0079168	INDUCTOR .68 UH SUBMIN UNSHLD 10%	91637	IR-2
L 004	0079168	INDUCTOR .68 UH SUBMIN UNSHLD 10%	91637	IR-2
L 005	0145353	INDUCTOR 13.5 T #24 6-32X3/8 INCH CARB J	CCT	PER CCNT. DWG.
L 006	0145353	INDUCTOR 13.5 T #24 6-32X3/8 INCH CARB J	CCT	PER CCNT. DWG.
L 007	0081850	INDUCTOR 2.7 UH SUBMIN UNSHLD 5%	DP	IR-2
L 008	0078046	INDUCTOR 3.3 UH SUBMIN UNSHLD 10%	DP	IR-2
L 009	0081850	INDUCTOR 2.7 UH SUBMIN UNSHLD 5%	DP	IR-2
(3) L 010	0086015	INDUCTOR .16 UH SUBMIN UNSHLD 5%	DP	IR-2
(3) L 011	0077971	INDUCTOR 1.5 UH SUBMIN UNSHLD 10%	DP	IR-2
PSC01	0080895	RECTIFIER ASSY 100V 6A SOLDER LUGS	VAC	VH148
Q 001	0035669	TRANSSTR 2N5179 SIL NPN	MOS	2N5179
Q 002	0035669	TRANSSTR 2N5179 SIL NPN	MOS	2N5179
Q 003	0035042	TRANSSTR MRF 517 NPN SIL	MOS	MRF 517
R 001	0072019	RESISTOR 8.2K OHM 1/4W 10% COMP	AB	RCR07G822KS
R 002	0071993	RESISTOR 3.9K OHM 1/4W 10% COMP	AB	RCR07G392KS
R 003	0071951	RESISTOR 1.0K OHM 1/4W 10% COMP	AB	RCR07G102KS
R 004	0077524	RESISTOR 75 OHM 1/4W 5% COMP	AB	RCR07G75CJS
R 005	0071931	RESISTOR 560 OHM 1/4W 10% COMP	AB	RCR07G561KS
R 006	0071862	RESISTOR 47 OHM 1/4W 10% COMP	AB	RCR07G470KS
R 007	0071901	RESISTOR 180 OHM 1/4W 10% COMP	AB	RCR07G181KS
R 008	0071897	RESISTOR 150 OHM 1/4W 10% COMP	AB	RCR07G151KS
R 009	0071894	RESISTOR 120 OHM 1/4W 10% COMP	AB	RCR07G121KS
R 010	0071918	RESISTOR 330 OHM 1/4W 10% COMP	AB	RCR07G331KS
(1) R 011	0079318	RESISTOR 121 OHM RN55C 1% MTL FLM	DP	RN55C121CF
R 011	0083089	RESISTOR 75.0 OHM RN55C 1% MTL FLM	DP	RN55C75R0F
(1) R 012	0079120	RESISTOR 200 OHM RN55C 1% MTL FLM		RN55C2000F
R 013	0083056	RESISTOR 267 OHM RN55C 1% MTL FLM		RN55C267CF
(1) R 013	0083099	RESISTOR 1.30K OHM RN55C 1% MTL FLM		RN55C1301F

(1) and (3) SEE PAGE 6-12

IF/BASEBAND TEST OSCILLATOR PWB ASSEMBLY - 155910

REF DESIG PREFIX: A01

REF DESIG	PART NO.	DESCRIPTION	FSCM CODE	VENDOR PART NUMBER
R 014	0083085	RESISTOR 45.3 OHM RN55C 1% MTL FLM		RN55C45R3F
(1) R 014	0074657	RESISTOR 8.65 OHM 1/4W 1% DEP CAR	91637	DC-1/4
R 015	0083096	RESISTOR 267 OHM RN55C 1% MTL FLM		RN55C267CF
(1) R 015	0083099	RESISTOR 1.30K OHM RN55C 1% MTL FLM		RN55C1301F
R 016	0071982	RESISTOR 2.7K OHM 1/4W 10% COMP	01121	RCR07G272KS
R C17	0071926	RESISTOR 470 OHM 1/4W 10% COMP	C1121	RCR07G471KS
R 018	0084885	POT 10K OHM 1/2W CER 3/8 SQ VERT ADJ 20T	73138	66WR10K
R 019	0071926	RESISTOR 470 OHM 1/4W 10% COMP	01121	RCRC7G471KS
R 020	0072034	RESISTOR 12K OHM 1/4W 10% COMP	C1121	RCR07G123KS
R 021	0083926	RESISTOR 23.7K OHM RN55C 1% MTL FLM		RN55C2372F
R 022	0083902	RESISTOR 3.01K OHM RN55C 1% MTL FLM		RN55C3C11F
R 023	0071941	RESISTOR 820 OHM 1/4W 10% COMP	C1121	RCR07G821KS
(2) R 037	0083097	RESISTOR 332 OHM RN55C 1% MTL FLM		RN55C3320F
(2) R 038	CC83084	RESISTOR 35.7 OHM RN55C 1% MTL FLM		RN55C35R7F
(2) R 039	0083097	RESISTOR 332 OHM RN55C 1% MTL FLM		RN55C3320F
(3) R 040	0084055	RESISTOR 681 OHM RN55C 1% MTL FLM		RN55C6810F
S 001	0085965	SWITCH SLIDE DPDT RT ANGLE PC MT		GG387E .578 IN.BUTTON
S 002	0085965	SWITCH SLIDE DPDT RT ANGLE PC MT		GG387E .578 IN.BUTTON
S 003	0085965	SWITCH SLIDE DPDT RT ANGLE PC MT		GG387E .578 IN.BUTTON
T 001	0085963	XFMR 2SEC 15V 150MA EA 2PRI 115V 50/60HZ		U34-015-C-N
TP001	0082909	TERMINAL PRESS MT DISCONNECT .058 PIN	00779	60599-1
TP002	0082909	TERMINAL PRESS MT DISCONNECT .058 PIN	00779	60599-1
TP003	0082909	TERMINAL PRESS MT DISCONNECT .058 PIN	00779	60599-1
U 001	0085294	IC VLTG RGLTR POS 12V 0.5A TYP TO220	04713	MC7812CT
U 002	0085295	IC VLTG RGLTR NEG 12V 0.5A TYP TO220	04713	MC7912CT
U 003	0084890	IC OP AMP 8L-DIP 70C COMP 741C	04713	MC1741CP1
Y 001	0152772	XTAL,IF,74.13 MHZ,SPEC CONTROL DWG		
Y 002	0152773	XTAL,IF,74.43 MHZ,SPEC CONTROL DWG		

(1) APPLIES TO SERIAL NUMBER 571 AND BELOW (APPROXIMATELY).

(2) APPLIES TO SERIAL NUMBER 572 AND ABOVE (APPROXIMATELY).

(3) COMPONENTS ARE NOT USED ON SERIAL NUMBER 117 AND ABOVE (APPROXIMATELY).

MODEL 4682-2(74) IF/BASEBAND OSCILLATOR UNIT - 152763

REF DESIG	PART NO.	DESCRIPTION	FSCM CODE	VENDOR PART NUMBER
A 001	0155911	PWB ASSY, IF/BB TEST OSC. MDL 4682-2-74	10110	155911
F 001	0071215	FUSE 1/4 AMP SLO BLO	75915	3AG 313.250
(1) FL001	0313177	PWB ASSY, 85MHz LOW PASS FILTER	10110	313177
W 001	0152777	CABLE ASSY, POWER, MODEL 4682		
W 002	0152776	CABLE ASSY, IF OUTPUT, MODEL 4682		
W 003	0155893	INDICATOR ASSY, POWER, MODEL 4682		

(1) APPLIES TO SERIAL NUMBER 578 AND ABOVE (APPROXIMATELY).

IF/BASEBAND TEST OSCILLATOR PWB ASSEMBLY - 155911

REF DESIG PREFIX: A01

REF DESIG	PART NO.		DESCRIPTION	FSCM CODE	VENDOR PART NUMBER
C 001	0076732		CAPACITR 500 MF 25V	80183	39D507G025HE4
C 002	0076732		CAPACITR 500 MF 25V	80183	39D507G025HE4
C 003	0035654		CAPACITR 10 MF 25V SOLID TANT POL 10%	05397	T3628106K025AS
C 004	0035654		CAPACITR 10 MF 25V SOLID TANT POL 10%	05397	T3628106K025AS
C 005	0080139		CAPACITR .1 MF 50V CER MONO -20%+80%	72982	8131-050-651-104Z
C 006	0080139		CAPACITR .1 MF 50V CER MONO -20%+80%	72982	8131-050-651-104Z
C 007	0081210		CAPACITR .01 MF 50V CER MONO X7R 10%	72982	8121-050-X7R-103K
C 008	0081210		CAPACITR .01 MF 50V CER MONO X7R 10%	72982	8121-050-X7R-103K
C 009	0035761		CAPACITR 5.0 PF 500V CER DISC COH +-.25P	72982	831-COHO-509C
C 010	0035761		CAPACITR 5.0 PF 500V CER DISC COH +-.25P	72982	831-COHO-509C
C 011	0070522		CAPACITR 150 PF 500V SILVER MICA 5%	14655	CD15FD151J03
C 012	0081210		CAPACITR .01 MF 50V CER MONO X7R 10%	72982	8121-050-X7R-103K
C 013	0073495		CAPACITR 39 PF 500V SILVER MICA 5%	14655	CD15ED390J03
C 014	0073497		CAPACITR 180 PF 500V SILVER MICA 5%	14655	CD15FD181J03
C 015	0082007		CAPACITR 4.3 PF 100V CER DISC COH +-.25P	72982	835-024-COHO-439C
C 016	0081210		CAPACITR .01 MF 50V CER MONO X7R 10%	72982	8121-050-X7R-103K
C 017	0081210		CAPACITR .01 MF 50V CER MONO X7R 10%	72982	8121-050-X7R-103K
C 018	0081210		CAPACITR .01 MF 50V CER MONO X7R 10%	72982	8121-050-X7R-103K
(3) C 019	0081829		CAPACITR 15 PF 500V SILVER MICA +-.5 PF	53021	D155C150D03
(3) C 020	0081820		CAPACITR 11 PF 100V SILVER MICA 5%	53021	D151C110J03
C 021	0081210		CAPACITR .01 MF 50V CER MONO X7R 10%	72982	8121-050-X7R-103K
C 022	0080139		CAPACITR .1 MF 50V CER MONO -20%+80%	72982	8131-050-651-104Z
C 023	0080139		CAPACITR .1 MF 50V CER MONO -20%+80%	72982	8131-050-651-104Z
C 024	0080139		CAPACITR .1 MF 50V CER MONO -20%+80%	72982	8131-050-651-104Z
C 025	0081210		CAPACITR .01 MF 50V CER MONO X7R 10%	72982	8121-050-X7R-103K
C 026	0081210		CAPACITR .01 MF 50V CER MONO X7R 10%	72982	8121-050-X7R-103K
C 027	0082434		CAPACITR 25 PF 100V CER DISC COG 5%	18796	835-024-COGO-250J
C 028	0080139		CAPACITR .1 MF 50V CER MONO -20%+80%	72982	8131-050-651-104Z
C 029	0080139		CAPACITR .1 MF 50V CER MONO -20%+80%	72982	8131-050-651-104Z
C 030	0081210		CAPACITR .01 MF 50V CER MONO X7R 10%	72982	8121-050-X7R-103K
C 031	0081210		CAPACITR .01 MF 50V CER MONO X7R 10%	72982	8121-050-X7R-103K
C 032	0081210		CAPACITR .01 MF 50V CER MONO X7R 10%	72982	8121-050-X7R-103K
C 033	0080139		CAPACITR .1 MF 50V CER MONO -20%+80%	72982	8131-050-651-104Z
C 034	0070517		CAPACITR 100 PF 500V SILVER MICA 5%	14655	CD15FD101J03
C 035	0081995		CAPACITR .001 MF 100V CER MONO X7R 10%	72982	8121-100-X7R-102K
C 036	0080139		CAPACITR .1 MF 50V CER MONO -20%+80%	72982	8131-050-651-104Z
C 037	0078976		CAPACITR 15-60 PF MIN CER DISC PC MT	72982	538-011 F 15-60
C 038	0081931		CAPACITR 15 PF 500V CER DISC COG 5%	72982	831-COGO-150J
C 039	0070534		CAPACITR 330 PF 500V SILVER MICA 5%	14655	CD15FD331J03
C 040	0080139		CAPACITR .1 MF 50V CER MONO -20%+80%	72982	8131-050-651-104Z
C 041	0081210		CAPACITR .01 MF 50V CER MONO X7R 10%	72982	8121-050-X7R-103K
C 042	0070528		CAPACITR 200 PF 1KV CER DISC S3N 10%	71590	DD-201
(4) C 043	0070474		CAPACITR 10 PF 1 KV CER DISC S2L 10%	71590	DD-100
(4) C 044	0082004		CAPACITR 3.3 PF 100V CER DISC +-.25P	72982	835-024-COHO-479C
(1) CR001	0080895		RECTIFIER ASSY 100V 6A SOLDER LUGS	83003	VH148
(1) CR002	0077022		DIODE 5082-2900 HOT CARRIER SWITCH	28480	5082-2900
CR003	0077022		DIODE 5082-2900 HOT CARRIER SWITCH	28480	5082-2900
E 001	0081718		CORE BEAD FERRITE 7D .138X.037X.150L GRN	78488	57-1413
E 002	0081718		CORE BEAD FERRITE 7D .138X.037X.150L GRN	78488	57-1413
J 001	0086008		CONN RECT 8-COND MALE PC MT W/CONTACTS		350212-2
J 002	0084940		CONN COAX SMB MALE PC MT 75 OHM	98291	51-151-0000
L 001	0081850		INDUCTOR 2.7 UH SUBMIN UNSHLD 5%	91637	IR-2
L 002	0152775	A	INDUCTOR, VARIABLE - 0.11 TO 0.21 UH		
L 003	0079168		INDUCTOR .68 UH SUBMIN UNSHLD 10%	91637	IR-2
L 004	0079168		INDUCTOR .68 UH SUBMIN UNSHLD 10%	91637	IR-2
L 005	0145353		INDUCTOR 13.5 T #24 6-32X3/8 INCH CARB J		PER CONT. DWG.
L 006	0145353		INDUCTOR 13.5 T #24 6-32X3/8 INCH CARB J		PER CONT. DWG.
L 007	0081850		INDUCTOR 2.7 UH SUBMIN UNSHLD 5%	91637	IR-2
L 008	0078046		INDUCTOR 3.3 UH SUBMIN UNSHLD 10%	91637	IR-2
L 009	0081850		INDUCTOR 2.7 UH SUBMIN UNSHLD 5%	91637	IR-2
(3) L 010	0086015		INDUCTOR .16 UH SUBMIN UNSHLD 5%		IR-2
(3) L 011	0077971		INDUCTOR 1.5 UH SUBMIN UNSHLD 10%	91637	IR-2
L 012	0079893		INDUCTOR 220 UH MIN SHLD ENCAP 5%	72259	WEE-22C
L 013	0078716		INDUCTOR 100 UH SUBMIN UNSHLD 10%	91637	IR-2
L 014	0086007		INDUCTOR 60-120 UH PC MT		SC55
L 015	0078716		INDUCTOR 100 UH SUBMIN UNSHLD 10%	91637	IR-2
(2) PS001	0080895		RECTIFIER ASSY 100V 6A SOLDER LUGS	83003	VH148

(1), (2), (3) and (4) SEE PAGE 6-16

IF/BASEBAND TEST OSCILLATOR PWB ASSEMBLY - 155911

REF DESIG PREFIX: A01

REF DESIG	PART NO.	DESCRIPTION	FSCM CODE	VENDOR PART NUMBER
Q 001	0035669	TRANSSTR 2N5179 SIL NPN	04713	2N5179
Q 002	0035669	TRANSSTR 2N5179 SIL NPN	04713	2N5179
Q 003	0085042	TRANSSTR MRF 517 NPN SIL	04713	MRF 517
Q 004	0077147	TRANSSTR 2N3947 NPN SIL	04713	2N3947
Q 005	0077147	TRANSSTR 2N3947 NPN SIL	04713	2N3947
Q 006	0085118	TRANSSTR 2N4416A FET N-CHNL JUNC	17856	2N4416A
R 001	0072019	RESISTOR 8.2K OHM 1/4W 10% COMP	01121	RCR07G822KS
R 002	0071993	RESISTOR 3.9K OHM 1/4W 10% COMP	01121	RCR07G392KS
R 003	0071951	RESISTOR 1.0K OHM 1/4W 10% COMP	01121	RCR07G102KS
R 004	0077524	RESISTOR 75 OHM 1/4W 5% COMP	01121	RCR07G750JS
R 005	0071931	RESISTOR 560 OHM 1/4W 10% COMP	01121	RCR07G561KS
R 006	0071862	RESISTOR 47 OHM 1/4W 10% COMP	01121	RCR07G47CKS
R 007	0071901	RESISTOR 180 OHM 1/4W 10% COMP	01121	RCR07G181KS
R 008	0071857	RESISTOR 150 OHM 1/4W 10% COMP	01121	RCR07G151KS
R 009	0071894	RESISTOR 120 OHM 1/4W 10% COMP	01121	RCR07G121KS
R 010	0071918	RESISTOR 330 OHM 1/4W 10% COMP	01121	RCR07G331KS
R 011	0083089	RESISTOR 75.0 OHM RN55C 1% MTL FLM		RN55C75R0F
(1) R 011	0079318	RESISTOR 121 OHM RN55C 1% MTL FLM		RN55C1210F
(1) R 012	0079120	RESISTOR 200 OHM RN55C 1% MTL FLM		RN55C2000F
R 013	0083096	RESISTOR 267 OHM RN55C 1% MTL FLM		RN55C2670F
(1) R 013	0083099	RESISTOR 1.30K OHM RN55C 1% MTL FLM		RN55C2000F
R 014	0083085	RESISTOR 45.3 OHM RN55C 1% MTL FLM		RN55C45R3F
(1) R 014	0074657	RESISTOR 8.65 OHM 1/4W 1% DEP CAR	91637	DC-1/4
R 015	0083096	RESISTOR 267 OHM RN55C 1% MTL FLM		RN55C2670F
(1) R 015	0083099	RESISTOR 1.30K OHM RN55C 1% MTL FLM		RN55C1301F
R 016	0071982	RESISTOR 2.7K OHM 1/4W 10% COMP	01121	RCR07G272KS
R 017	0071926	RESISTOR 470 OHM 1/4W 10% COMP	01121	RCR07G471KS
R 018	0084885	POT 10K OHM 1/2W CER 3/8 SQ VERT ADJ 20T	73138	66WR10K
R 019	0071926	RESISTOR 470 OHM 1/4W 10% COMP	01121	RCR07G471KS
R 020	0072034	RESISTOR 12K OHM 1/4W 10% COMP	01121	RCR07G123KS
R 021	0083926	RESISTOR 23.7K OHM RN55C 1% MTL FLM		RN55C2372F
R 022	0083902	RESISTOR 3.01K OHM RN55C 1% MTL FLM		RN55C3011F
R 023	0071941	RESISTOR 820 OHM 1/4W 10% COMP	01121	RCR07G821KS
R 024	0083951	RESISTOR 154K OHM RN55C 1% MTL FLM		RN55C1543F
R 025	0083940	RESISTOR 59.0K OHM RN55C 1% MTL FLM		RN55C5902F
R 026	0071926	RESISTOR 470 OHM 1/4W 10% COMP	01121	RCR07G471KS
R 027	0082186	RESISTOR 750K OHM RN60C 1% MTL FLM		RN60C7503F
R 028	0085961	POT 1 M OHM 1/2W CER 3/8 SQ VERT ADJ 18T		68WR1MEG
R 029	0072019	RESISTOR 8.2K OHM 1/4W 10% COMP	01121	RCR07G822KS
R 030	0071973	RESISTOR 1.8K OHM 1/4W 10% COMP	01121	RCR07G182KS
R 031	0072026	RESISTOR 10K OHM 1/4W 10% COMP	01121	RCR07G103KS
R 032	0071951	RESISTOR 1.0K OHM 1/4W 10% COMP	01121	RCR07G102KS
R 033	0071977	RESISTOR 2.2K OHM 1/4W 10% COMP	01121	RCR07G222KS
R 034	0071982	RESISTOR 2.7K OHM 1/4W 10% COMP	01121	RCR07G272KS
R 035	0072034	RESISTOR 12K OHM 1/4W 10% COMP	01121	RCR07G123KS
R 036	0083085	RESISTOR 75.0 OHM RN55C 1% MTL FLM		RN55C75R0F
R 037	0083097	RESISTOR 332 OHM RN55C 1% MTL FLM		RN55C3320F
(2) R 038	0083084	RESISTOR 35.7 OHM RN55C 1% MTL FLM		RN55C35R7F
R 039	0083097	RESISTOR 332 OHM RN55C 1% MTL FLM		RN55C3320F
(3) R 040	0084055	RESISTOR 681 OHM RN55C 1% MTL FLM		RN55C6810F
S 001	0085965	SWITCH SLIDE DPDT RT ANGLE PC MT		GG387E .578 IN.BUTTON
S 002	0085965	SWITCH SLIDE DPDT RT ANGLE PC MT		GG387E .578 IN.BUTTON
S 003	0085965	SWITCH SLIDE DPDT RT ANGLE PC MT		GG387E .578 IN.BUTTON
T 001	0085963	XFMR 2SEC 15V 150MA EA 2PRI 115V 50/60HZ		U34-015-C-N
T 002	0085964	XFMR MATCHING .06-12 MHZ 75 IN 124 OUT		304-10001
TP001	0082909	TERMINAL PRESS MT DISCONNECT .058 PIN	00779	60599-1
TP002	0082909	TERMINAL PRESS MT DISCONNECT .058 PIN	00779	60599-1
TP003	0082909	TERMINAL PRESS MT DISCONNECT .058 PIN	00779	60599-1

(1), (2) and (3) SEE PAGE 6-16

IF/BASEBAND TEST OSCILLATOR PWB ASSEMBLY - 155911

REF DESIG PREFIX: A01

REF DESIG	PART NO.	DESCRIPTION	FSCM CODE	VENDOR PART NUMBER
TP004	0082909	TERMINAL PRESS MT DISCONNECT .058 PIN	00779	60599-1
U 001	0085294	IC VLTG RGLTR POS 12V 0.5A TYP TO220	04713	MC7812CT
U 002	0085295	IC VLTG RGLTR NEG 12V 0.5A TYP TO220	04713	MC7912CT
U 003	0084890	IC OP AMP 8L-DIP 70C COMP 741C	04713	MC1741CP1
U 004	0078219	IC TRANSSTR ARRAY 2-NPN TEMP COMPENSATED	13715	726 HC
U 005	0080911	IC OP AMP 8L-TO5 70C UNCOMP LO IN-CUR	12040	LM308AH
Y 001	0152772	XTAL,IF,74.13 MHZ,SPEC CONTROL DWG		
Y 002	0152773	XTAL,IF,74.43 MHZ,SPEC CONTROL DWG		
Y 003	0152769	XTAL, 1.05 MHZ, IF/BB TEST OSC. MDL 4682		

(1) APPLIES TO SERIAL NUMBER 571 AND BELOW (APPROXIMATELY).

(2) APPLIES TO SERIAL NUMBER 572 AND ABOVE (APPROXIMATELY).

(3) COMPONENTS ARE NOT USED ON SERIAL NUMBER 578 AND ABOVE (APPROXIMATELY).

(4) APPLIES TO SERIAL NUMBER 578 AND ABOVE (APPROXIMATELY).

FSCM - MANUFACTURER CROSS REFERENCE

FSCM	MANUFACTURER	CITY	STATE
00779	AMP	HARRISBURG	PA
01121	ALLEN-BRADLEY CO	MILWAUKEE	WISC
04713	MOTOROLA SEMICONDUCTOR PDTS	PHOENIX	ARIZ
05397	KEMET DIV-UNION CARBID	CLEVELAND	OHIO
12040	NATIONAL SEMICONDUCTOR CORP	DANBURY	CONN
14655	CORNELL-DUBILIER ELEC CORP	S PLAINFIELD	NJ
18796	ERIE TECHNOLOGICAL PRODUCTS INC-TECH MATLS DIV	STATE COLLEGE	PA
28480	H-P ASSOCIATES	PALO ALTO	CALIF
53021	SANGAMO ELECTRIC CO	SPRINGFIELD	ILL
71590	CENTERLAB	MILWAUKEE	WISC
72259	NYTRONICS INC	BERKELEY HTS	NJ
72982	ERIE RESISTOR CORP	ERIE	PA
73138	HELIPOT-DIV BECKMAN INSTR	FULLERTON	CALIF
78488	STACKPOLE CARBON CO-MAGNET DIV	ST MARYS	PENN
80183	PRAGUE PDTS CO	N ADAMS	MASS
83003	VARO INC	GARLAND	TEXAS
91637	DALE PRODUCTS INC	ATTELBORO	MASS
98291	SEALECTRO CORP	SAN DIEGO	CA

CHAPTER 7
DIAGRAMS

7.1 GENERAL

7.1.1 The diagrams contained in this chapter are provided for both detailed troubleshooting if a malfunction should occur and as a training aid for maintenance personnel who will be responsible for the care and operation of the Model 4682 IF/Baseband Test Oscillator.

7.2 INDEX OF DIAGRAMS

7.2.1 The schematic and assembly diagrams contained in this chapter are arranged as follows:

Figure	Title	Page
7-1	Model 4682-1/4682-2 IF/Baseband Test Oscillator, General Circuit Locations	7-3
7-2	Model 4682-1 IF/Baseband Test Oscillator PWB Assembly (A1)	7-4
7-3	Model 4682-2 IF/Baseband Test Oscillator PWB Assembly (A1)	7-5
7-4	Model 4682-1/4682-2 IF/Baseband Test Oscillator Unit, Schematic	7-6
7-5	Power Supply Circuit, Schematic	7-7
7-6	Test Oscillator Circuit, Schematic	7-8
7-7	Frequency Generator Circuit, Schematic (Applies only to Model 4682-2)	7-9

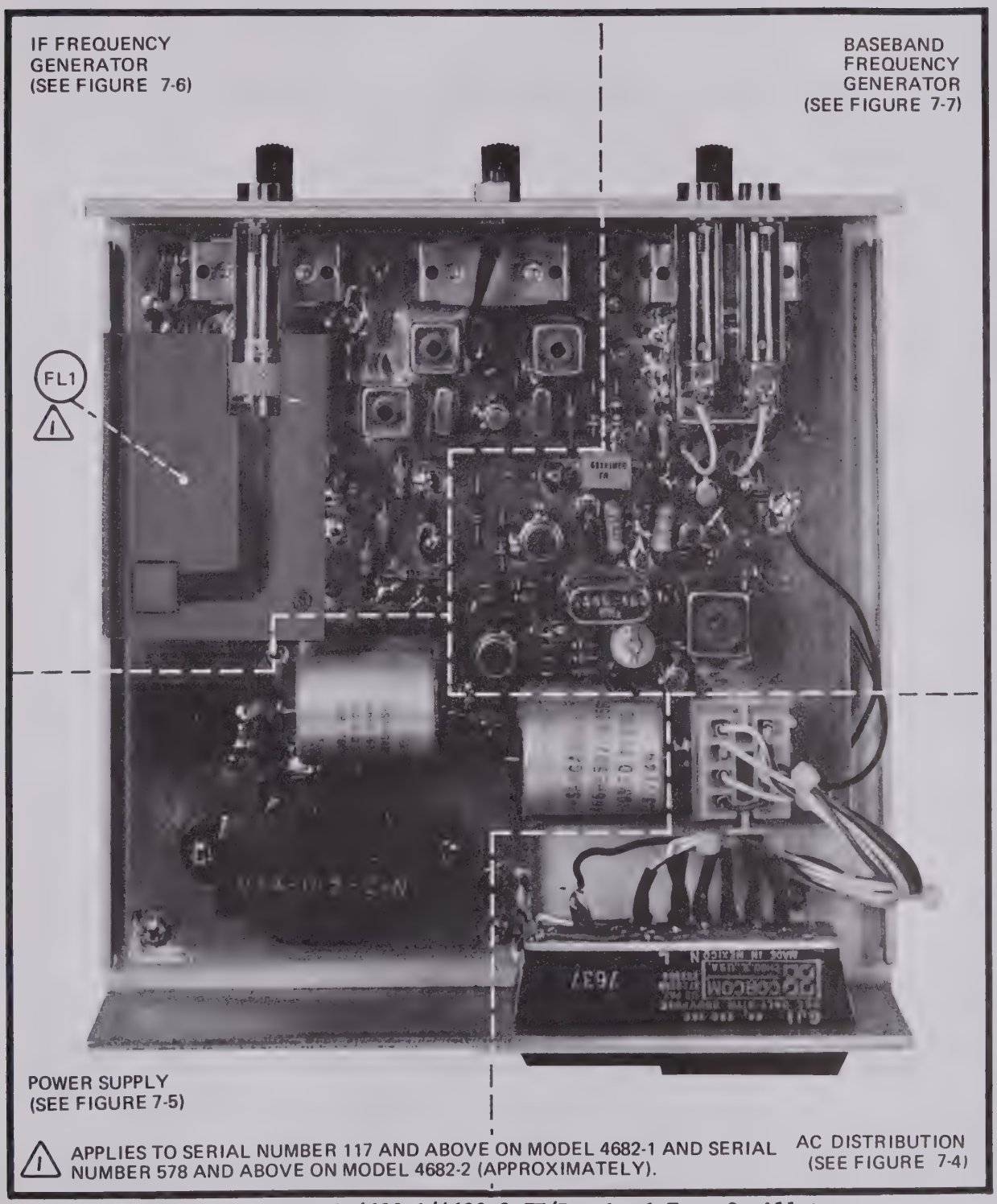
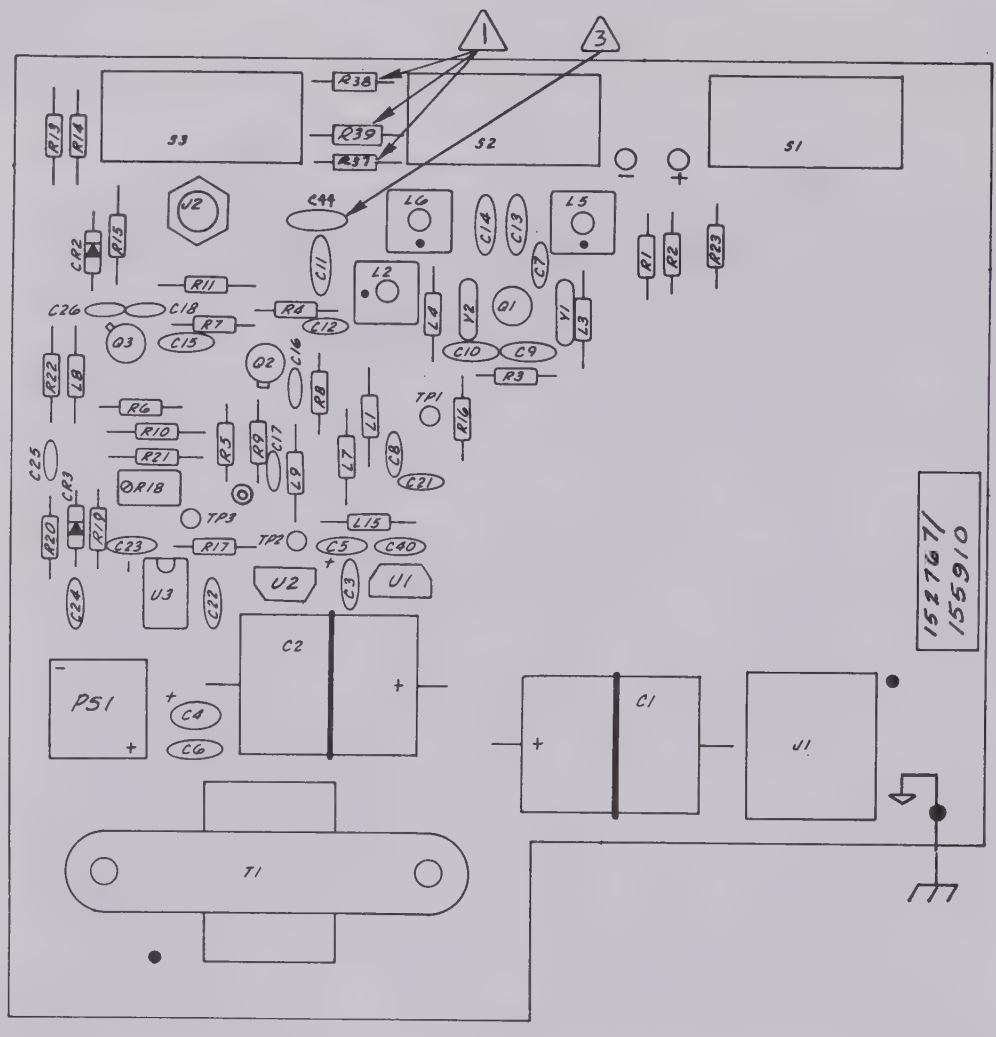

IF FREQUENCY GENERATOR (SEE FIGURE 7-6)
BASEBAND FREQUENCY GENERATOR (SEE FIGURE 7-7)
FL1
1
POWER SUPPLY (SEE FIGURE 7-5)
AC DISTRIBUTION (SEE FIGURE 7-4)
1 APPLIES TO SERIAL NUMBER 117 AND ABOVE ON MODEL 4682-1 AND SERIAL NUMBER 578 AND ABOVE ON MODEL 4682-2 (APPROXIMATELY).

Figure 7-1. Model 4682-1/4682-2 IF/Baseband Test Oscillator, General Circuit Locations

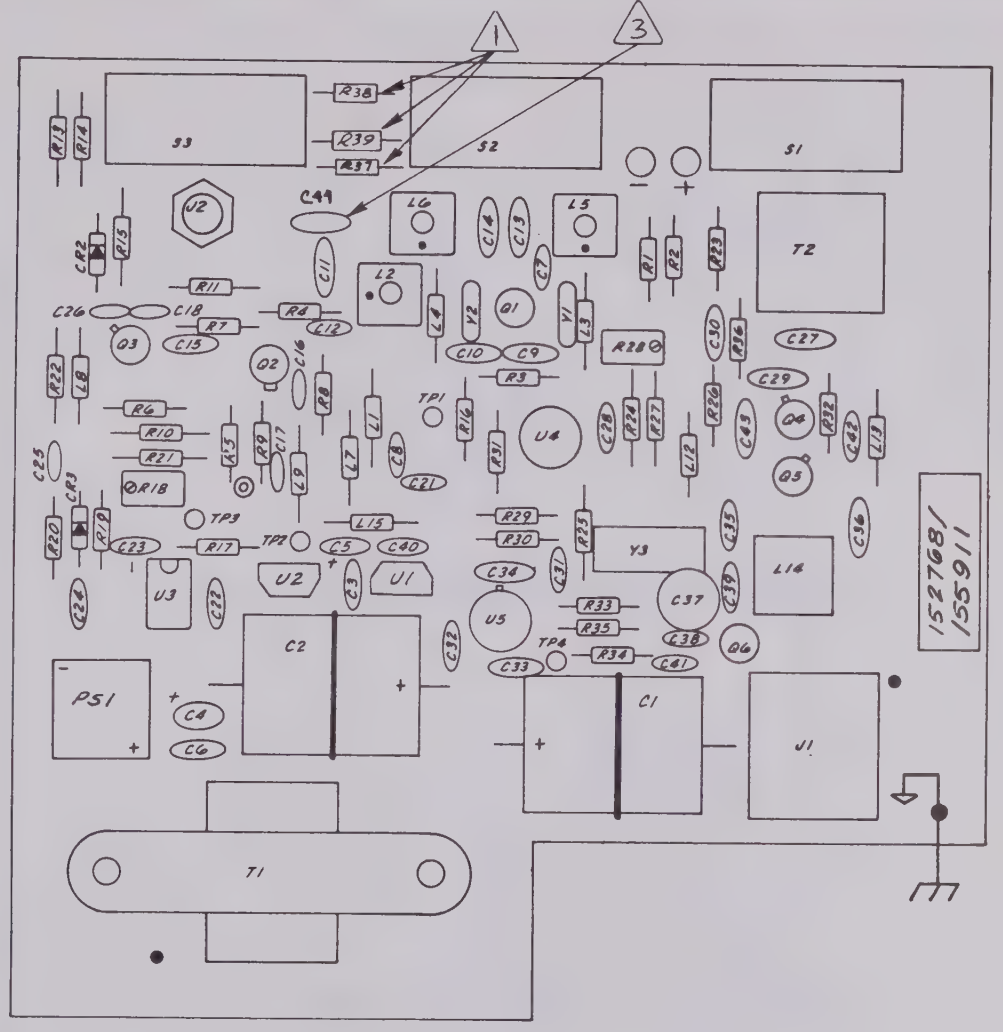


⚠1 APPLIES TO SERIAL NUMBER 112 AND ABOVE (APPROXIMATELY).

2. COMPONENTS C19, C20, L10, L11 AND R40 ARE NOT USED ON SERIAL NUMBER 117 AND ABOVE (APPROXIMATELY).

⚠3 APPLIES TO SERIAL NUMBER 117 AND ABOVE (APPROXIMATELY).

Figure 7-2. Model 4682-1 IF/Baseband Test Oscillator PWB Assembly (A1)

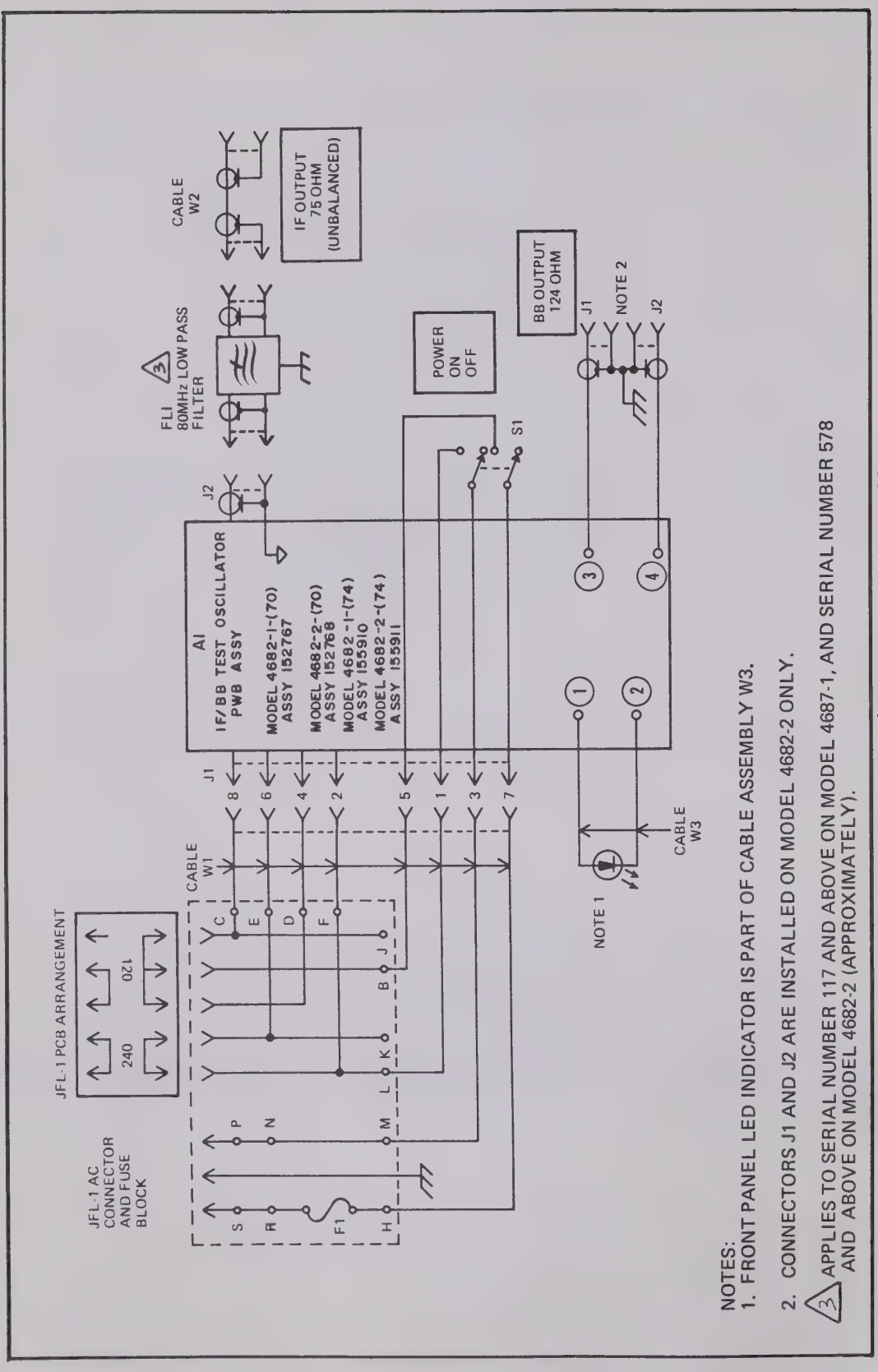


1. APPLIES TO SERIAL NUMBER 572 AND ABOVE (APPROXIMATELY).

2. COMPONENTS C19, C20, L10, L11, AND R40 ARE NOT USED ON SERIAL NUMBER 578 AND ABOVE (APPROXIMATELY).

3. APPLIES TO SERIAL NUMBER 578 AND ABOVE (APPROXIMATELY).

Figure 7-3. Model 4682-2 IF/Baseband Test Oscillator PWB Assembly (A1)



NOTES:
1. FRONT PANEL LED INDICATOR IS PART OF CABLE ASSEMBLY W3.
2. CONNECTORS J1 AND J2 ARE INSTALLED ON MODEL 4682-2 ONLY.
3. APPLIES TO SERIAL NUMBER 117 AND ABOVE ON MODEL 4687-1, AND SERIAL NUMBER 578 AND ABOVE ON MODEL 4682-2 (APPROXIMATELY).

Figure 7-4. Model 4682-1/4682-2 IF/Baseband Test Oscillator Unit, Schematic

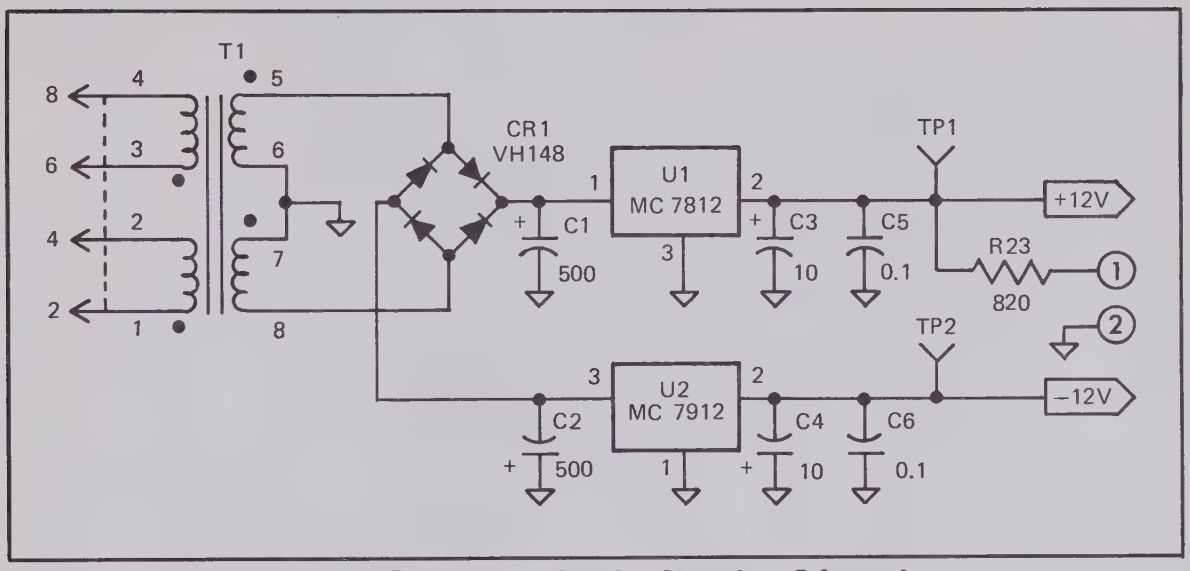


Figure 7-5. Power Supply Circuit, Schematic

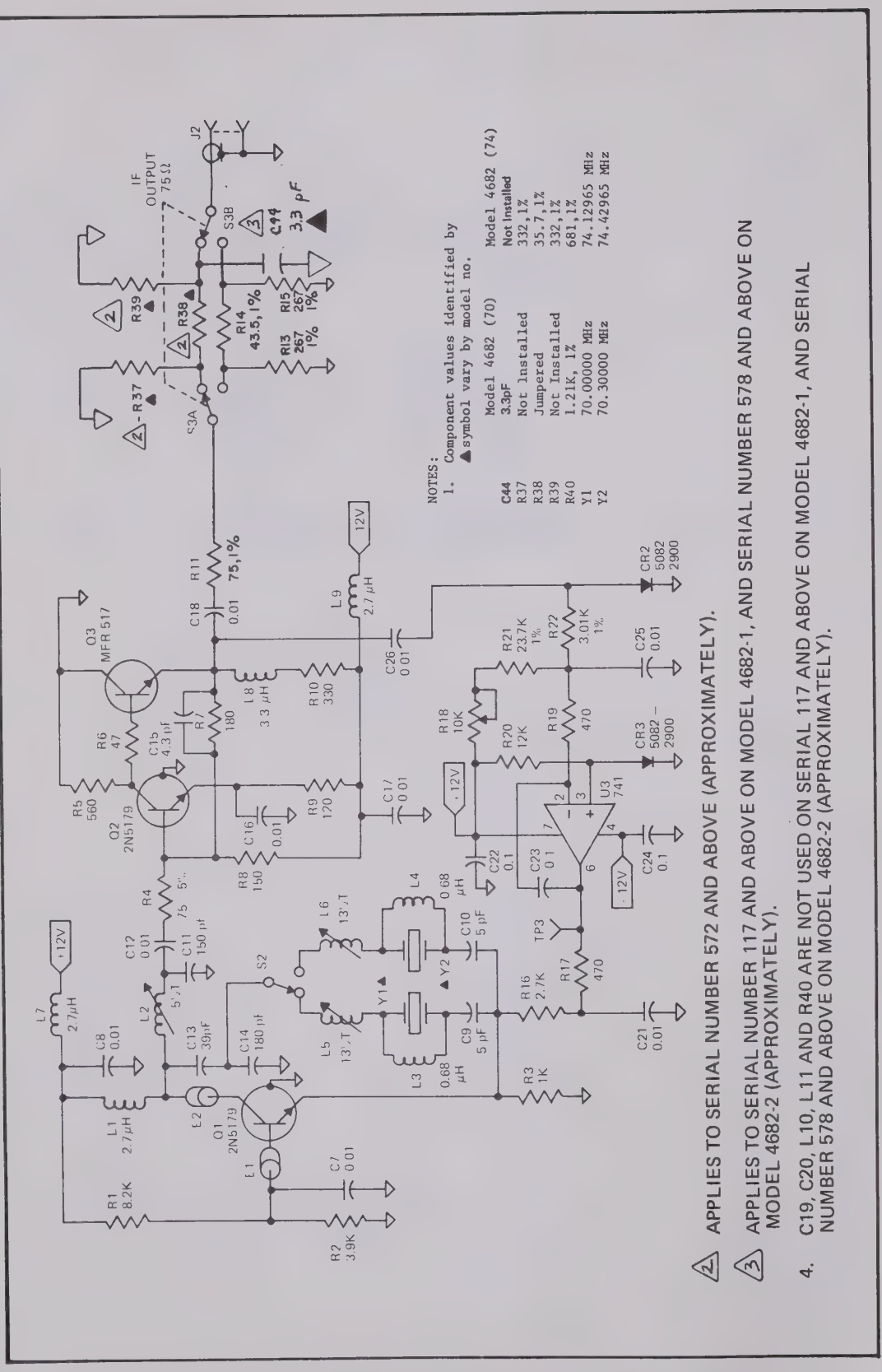


Figure 7-6. Test Oscillator Circuit, Schematic

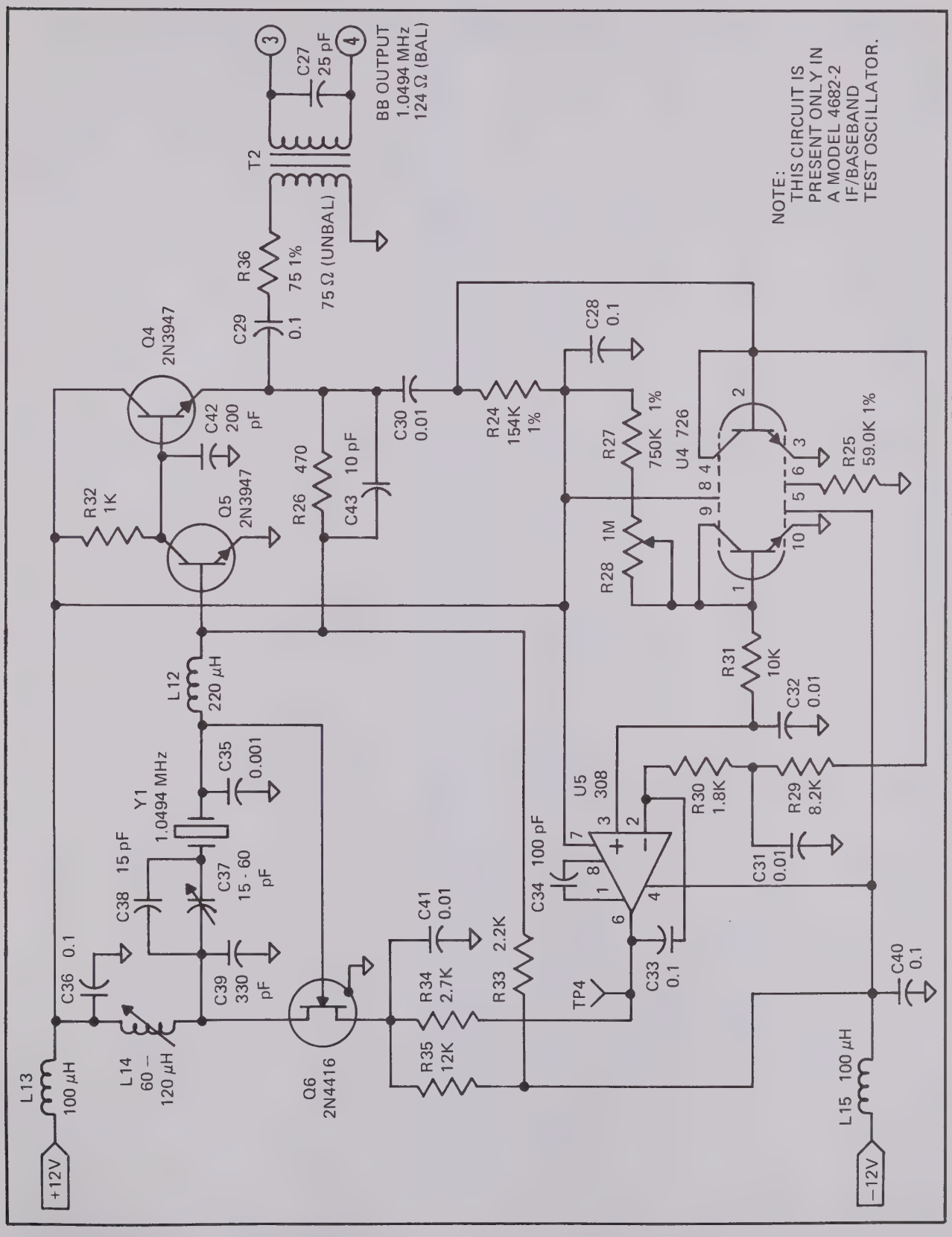


Figure 7-7. Frequency Generator Circuit, Schematic (Applies only to Model 4682-2)

CONVERSION OF VOLTAGE AND POWER RATIOS TO DECIBELS

The basic chart below indicates the number of decibels (dB) corresponding to the listed ratios of voltage or power over the range of −20 to +20 dB. For voltage or power ratios greater than those included in the chart, the ratio can be broken down into a product of two numbers, the value in dB for each found separately, and the two results added. Example: To convert a power ratio of 2,000:1 to dB, express 2,000 as 2×10^3; the number of dB corresponding to a power ratio of 2 is very nearly 3, and the number of dB for a power ratio of 10^3 is 30. Therefore, the power ratio of 2,000:1 is approximately 30 dB + 3 dB = 33 dB. In the lower righthand corner of the chart dB values for voltage and power ratios of integral powers of 10 are given.

Voltage Ratio	*Power Ratio*	*−dB+*	*Voltage Ratio*	*Power Ratio*	*Voltage Ratio*	*Power Ratio*	*−dB+*	*Voltage Ratio*	*Power Ratio*	*Voltage Ratio*	*Power Ratio*	*−dB+*	*Voltage Ratio*	*Power Ratio*
1.000	**1.000**	**0**	**1.000**	**1.000**	**.447**	**.200**	**7.0**	**2.239**	**5.012**	**.200**	**.0398**	**14.0**	**5.012**	**25.12**
.989	.977	.1	1.012	1.023	.442	.195	7.1	2.265	5.129	.197	.0389	14.1	5.070	25.70
.977	.955	.2	1.023	1.047	.437	.191	7.2	2.291	5.248	.195	.0380	14.2	5.129	26.30
.966	.933	.3	1.035	1.072	.432	.186	7.3	2.317	5.370	.193	.0372	14.3	5.188	26.92
.955	.912	.4	1.047	1.096	.427	.182	7.4	2.344	5.495	.191	.0363	14.4	5.248	27.54
.944	.891	.5	1.059	1.122	.422	.178	7.5	2.371	5.623	.188	.0355	14.5	5.309	28.18
.933	.871	.6	1.072	1.148	.417	.174	7.6	2.399	5.754	.186	.0347	14.6	5.370	28.84
.923	.851	.7	1.084	1.175	.412	.170	7.7	2.427	5.888	.184	.0339	14.7	5.433	29.51
.912	.832	.8	1.096	1.202	.407	.166	7.8	2.455	6.026	.182	.0331	14.8	5.495	30.20
.902	.813	.9	1.109	1.230	.403	.162	7.9	2.483	6.166	.180	.0324	14.9	5.559	30.90
.891	**.794**	**1.0**	**1.122**	**1.259**	**.398**	**.159**	**8.0**	**2.512**	**6.310**	**.178**	**.0316**	**15.0**	**5.623**	**31.62**
.881	.776	1.1	1.135	1.288	.394	.155	8.1	2.541	6.457	.176	.0309	15.1	5.689	32.36
.871	.759	1.2	1.148	1.318	.389	.151	8.2	2.570	6.607	.174	.0302	15.2	5.754	33.11
.861	.741	1.3	1.161	1.349	.385	.148	8.3	2.600	6.761	.172	.0295	15.3	5.821	33.88
.851	.724	1.4	1.175	1.380	.380	.145	8.4	2.630	6.918	.170	.0288	15.4	5.888	34.67
.841	.708	1.5	1.189	1.413	.376	.141	8.5	2.661	7.079	.168	.0282	15.5	5.957	35.48
.832	.692	1.6	1.202	1.445	.372	.138	8.6	2.692	7.244	.166	.0275	15.6	6.026	36.31
.822	.676	1.7	1.216	1.479	.367	.135	8.7	2.723	7.413	.164	.0269	15.7	6.095	37.15
.813	.661	1.8	1.230	1.514	.363	.132	8.8	2.754	7.586	.162	.0263	15.8	6.166	38.02
.804	.646	1.9	1.245	1.549	.359	.129	8.9	2.786	7.762	.160	.0257	15.9	6.237	38.90
.794	**.631**	**2.0**	**1.259**	**1.585**	**.355**	**.126**	**9.0**	**2.818**	**7.943**	**.159**	**.0251**	**16.0**	**6.310**	**39.81**
.785	.617	2.1	1.274	1.622	.351	.123	9.1	2.851	8.128	.157	.0246	16.1	6.383	40.74
.776	.603	2.2	1.288	1.660	.347	.120	9.2	2.884	8.318	.155	.0240	16.2	6.457	41.69
.767	.589	2.3	1.303	1.698	.343	.118	9.3	2.917	8.511	.153	.0234	16.3	6.531	42.66
.759	.575	2.4	1.318	1.738	.339	.115	9.4	2.951	8.710	.151	.0229	16.4	6.607	43.65
.750	.562	2.5	1.334	1.778	.335	.112	9.5	2.985	8.913	.150	.0224	16.5	6.683	44.67
.741	.550	2.6	1.349	1.820	.331	.110	9.6	3.020	9.120	.148	.0219	16.6	6.761	45.71
.733	.537	2.7	1.365	1.862	.327	.107	9.7	3.055	9.333	.146	.0214	16.7	6.839	46.77
.724	.525	2.8	1.380	1.905	.324	.105	9.8	3.090	9.550	.145	.0209	16.8	6.918	47.86
.716	.513	2.9	1.396	1.950	.320	.102	9.9	3.126	9.772	.143	.0204	16.9	6.998	48.98
.708	**.501**	**3.0**	**1.413**	**1.995**	**.316**	**.100**	**10.0**	**3.162**	**10.000**	**.141**	**.0200**	**17.0**	**7.079**	**50.12**
.700	.490	3.1	1.429	2.042	.313	.0977	10.1	3.199	10.23	.140	.0195	17.1	7.161	51.29
.692	.479	3.2	1.445	2.089	.309	.0955	10.2	3.236	10.47	.138	.0191	17.2	7.244	52.48
.684	.468	3.3	1.462	2.138	.306	.0933	10.3	3.273	10.72	.137	.0186	17.3	7.328	53.70
.676	.457	3.4	1.479	2.188	.302	.0912	10.4	3.311	10.96	.135	.0182	17.4	7.413	54.95
.668	.447	3.5	1.496	2.239	.299	.0891	10.5	3.350	11.22	.133	.0178	17.5	7.499	56.23
.661	.437	3.6	1.514	2.291	.295	.0871	10.6	3.388	11.48	.132	.0174	17.6	7.586	57.54
.653	.427	3.7	1.531	2.344	.292	.0851	10.7	3.428	11.75	.130	.0170	17.7	7.674	58.88
.646	.417	3.8	1.549	2.399	.288	.0832	10.8	3.467	12.02	.129	.0166	17.8	7.762	60.26
.638	.407	3.9	1.567	2.455	.285	.0813	10.9	3.508	12.30	.127	.0162	17.9	7.852	61.66
.631	**.398**	**4.0**	**1.585**	**2.512**	**.282**	**.0794**	**11.0**	**3.548**	**12.59**	**.126**	**.0159**	**18.0**	**7.943**	**63.10**
.624	.389	4.1	1.603	2.570	.279	.0776	11.1	3.589	12.88	.125	.0155	18.1	8.035	64.57
.617	.380	4.2	1.622	2.630	.275	.0759	11.2	3.631	13.18	.123	.0151	18.2	8.128	66.07
.610	.372	4.3	1.641	2.692	.272	.0741	11.3	3.673	13.49	.122	.0148	18.3	8.222	67.61
.603	.363	4.4	1.660	2.754	.269	.0724	11.4	3.715	13.80	.120	.0145	18.4	8.318	69.18
.596	.355	4.5	1.679	2.818	.266	.0708	11.5	3.758	14.13	.119	.0141	18.5	8.414	70.79
.589	.347	4.6	1.698	2.884	.263	.0692	11.6	3.802	14.45	.118	.0138	18.6	8.511	72.44
.582	.339	4.7	1.718	2.951	.260	.0676	11.7	3.846	14.79	.116	.0135	18.7	8.610	74.13
.575	.331	4.8	1.738	3.020	.257	.0661	11.8	3.890	15.14	.115	.0132	18.8	8.710	75.86
.569	.324	4.9	1.758	3.090	.254	.0646	11.9	3.936	15.49	.114	.0129	18.9	8.811	77.62
.562	**.316**	**5.0**	**1.778**	**3.162**	**.251**	**.0631**	**12.0**	**3.981**	**15.85**	**.112**	**.0126**	**19.0**	**8.913**	**79.43**
.556	.309	5.1	1.799	3.236	.248	.0617	12.1	4.027	16.22	.111	.0123	19.1	9.016	81.28
.550	.302	5.2	1.820	3.311	.246	.0603	12.2	4.074	16.60	.110	.0120	19.2	9.120	83.18
.543	.295	5.3	1.841	3.388	.243	.0589	12.3	4.121	16.98	.108	.0118	19.3	9.226	85.11
.537	.288	5.4	1.862	3.467	.240	.0575	12.4	4.169	17.38	.107	.0115	19.4	9.333	87.10
.531	.282	5.5	1.884	3.548	.237	.0562	12.5	4.217	17.78	.106	.0112	19.5	9.441	89.13
.525	.275	5.6	1.905	3.631	.234	.0550	12.6	4.266	18.20	.105	.0110	19.6	9.550	91.20
.519	.269	5.7	1.928	3.715	.232	.0537	12.7	4.315	18.62	.104	.0107	19.7	9.661	93.33
.513	.263	5.8	1.950	3.802	.229	.0525	12.8	4.365	19.05	.102	.0105	19.8	9.772	95.50
.507	.257	5.9	1.972	3.890	.227	.0513	12.9	4.416	19.50	.101	.0102	19.9	9.886	97.72
.501	**.251**	**6.0**	**1.995**	**3.981**	**.224**	**.0501**	**13.0**	**4.467**	**19.95**	**.100**	**.0100**	**20.0**	**10.000**	**100.00**
.496	.246	6.1	2.018	4.074	.221	.0490	13.1	4.519	20.42		10^{-3}	30		10^3
.490	.240	6.2	2.042	4.169	.219	.0479	13.2	4.571	20.89	10^{-2}	10^{-4}	40	10^2	10^4
.484	.234	6.3	2.065	4.266	.216	.0468	13.3	4.624	21.38					
.479	.229	6.4	2.089	4.365	.214	.0457	13.4	4.677	21.88		10^{-5}	50		10^5
.473	.224	6.5	2.113	4.467	.211	.0447	13.5	4.732	22.39	10^{-3}	10^{-6}	60	10^3	10^6
.468	.219	6.6	2.138	4.571	.209	.0437	13.6	4.786	22.91		10^{-7}	70		10^7
.462	.214	6.7	2.163	4.677	.207	.0427	13.7	4.842	23.44	10^{-4}	10^{-8}	80	10^4	10^8
.457	.209	6.8	2.188	4.786	.204	.0417	13.8	4.898	23.99		10^{-9}	90		10^9
.452	.204	6.9	2.213	4.898	.202	.0407	13.9	4.955	24.55	10^{-5}	10^{-10}	100	10^5	10^{10}
											10^{-11}	110		10^{11}
										10^{-6}	10^{-12}	120	10^6	10^{12}

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Instruction

Manual Update Information

This envelope is provided for filing manual update information such as corrections to text, tables, procedures, new or revised drawings, or special application notes. Please use your own filing method to list the update entries in the blank space below.

This is an interim step to provide our customers with both errata and new information for this equipment while the manual is being corrected.

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